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ABSTRACT

Vocational agriculture teachers in Oklahoma prepared the shop project drawings which comprise the document. Seventy-one projects, with lists of required materials, diagrams, and measurements, are included. Construction projects fall into six categories (number of projects in parentheses): Trailers (5), racks (3), livestock production projects (30), crop production projects (3), farmstead improvement projects (8), shop improvement projects (12), and hobby, recreation, and miscellaneous projects (10). (MW)

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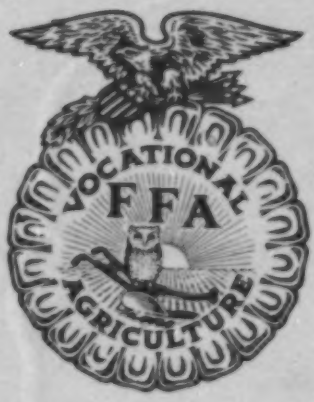
SHOP PROJECTS



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ACKNOWLEDGMENT

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t drawings.

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ideas and for helping evaluate the rough drawings used in this notebook.

o John McEachern and Bob Rea for the drawing of the illustrations and
d Susan Bell for proofing.

Bob Patton

eveloped by the Curriculum and Instructional Materials Center
For the Division of Vocational Agriculture Education
Bryle Killian, State Supervisor
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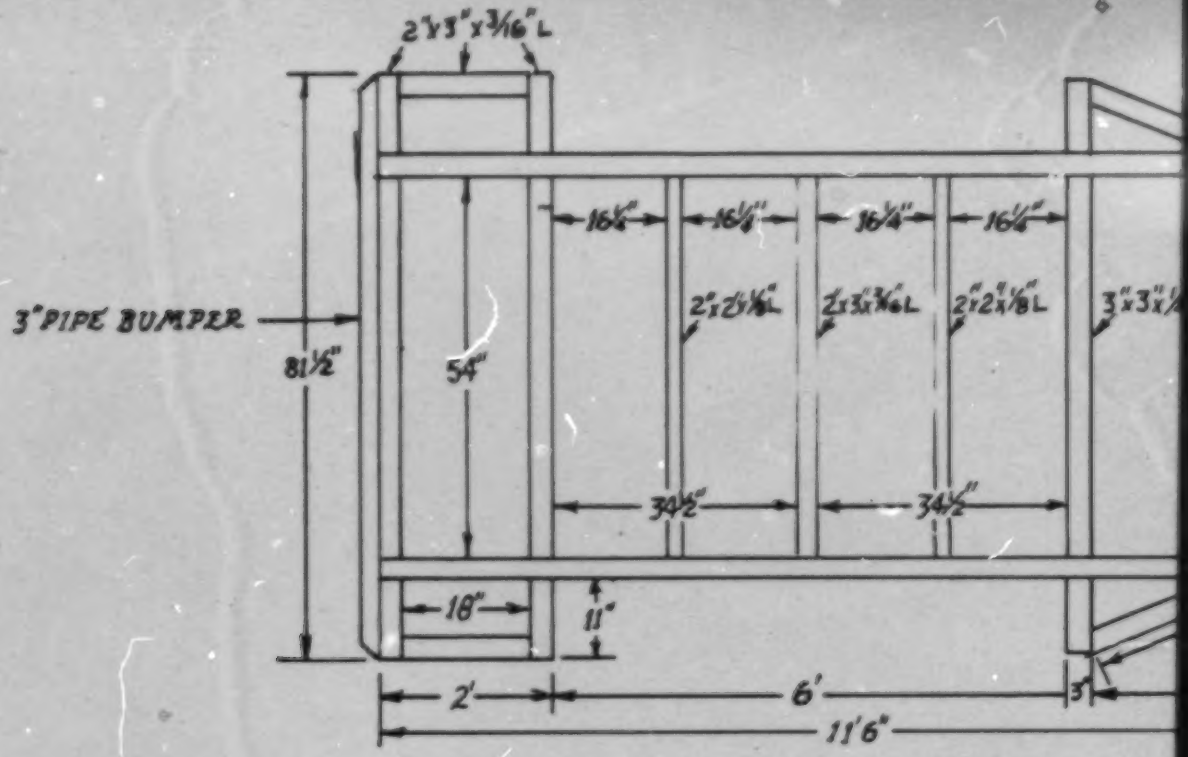
TABLE OF CO

AREAS WITHIN SHOP PROJECT ILLUSTRATIONS

Code Number:	Area
01:	Trailers
02:	Racks
03:	Livestock Production Projects
04:	Crop Production Projects
05:	Farmstead Improvement Projects
06:	Shop Improvement Projects
07:	Hobby, Recreation and Misc. Projects
01:1	Stock Trailer 14 ft.
01:2	Tilting Trailer
01:3	All Purpose Trailer
01:4	Utility Trailer with Slide-In Stock Racks
01:5	Goose Neck Stock Trailer 27 ft.
02:1	Headache Rack
02:2	Pickup Stock Racks
02:3	Pickup Stock Racks
03:1	Portable Chute & Head Gate
03:2	Head Gate
03:3	Portable Alleyway
03:4	Loading Chute
03:5	Folding Clipping Chute
03:6	Clipping Chute
03:7	Portable Corral
03:8	Barrel Feeder
03:9	Hay Feeder
03:10	Hay Feeder
03:11	
03:12	
03:14	
03:13	Hay
03:15	Lambing Pe
03:16	Tett
03:17	
03:18	Sh
03:19	
03:20	
03:21	
03:22	
03:23	
03:24	F
03:25	
03:26	
03:27	
03:28	
03:29	
03:30	
04:1	
04:2	
04:3	
05:1	
05:2	
05:3	
05:4	

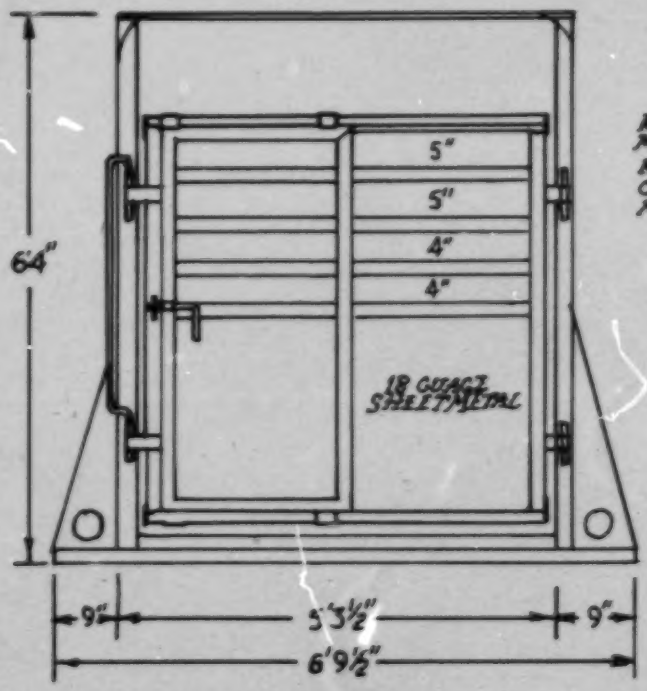
F CONTENTS

Hay Feeder	05:5	Trash Can Holder
Mineral Feeder	05:7	3-Point Hoist
Gate	05:6	Tractor Scraper Blade
Hay or Grain Bunk, Grain Bunk, Hay & Grain feeder	05:8	Cattle Guard
	06:1	Portable Oxyacetylene Manifold
Lambing Pen Panels, Portable Hay Rack, Portable Feed or Salt Box	06:2	Shop Cart and Portable Engine Stand
Tetting Calf Hoof Training Table	06:3	Round Stock Welding Jig and Portable Extension Outlet
Hog Breeding Crate	06:4	Oxyacetylene Cart
Sheep Pregnancy Testing Stand	06:5	Stack Scaffolding
Feed Lot Layout	06:6	Trailer Bow Handler, Wire Splice, Wire Bender
Folding Sorting Gate		
Calf Cradle	06:7	Trailer Jack Ramp, A Frame
Windmill	06:8	Weed Tester & Brinker, Weld Positioner, Angle Iron Saw Horse
Head Gate	06:9	Acetylene Welding Table, Workbench
Folding Sheep Blocking Stand	06:10	Adjustable Tractor Holding Jack, Hare Reel
Branding Iron Heater		
Salt and Mineral Feeder	06:11	Jig for Welding Trailer Hulls and Axles, Livestock Fan
Horse Walker	06:12	Fly Wheel Wrench, Fly Wheel Holder
Hoof Training Chute	07:1	Picnic Table
Slip-in Small Livestock Rack, Portable Feed Trough	07:2	Picnic Table
Sow Feeder	07:3	Barrel Dog House
Drag Harrow	07:4	Axle
Bale Elevator	07:6	Barrel Holder and Drawbar Pin
Land Leveler	07:7	Post Driner and Calf Puller
Stile	07:5	Dog-Proof Garbage Cans and Jig for Making Pipe
Wood Rack	07:3	Air Bottle, Barrel Barbecue
3-Point Carry-All	07:9	Car Ramp, Farrowing Crate
Tractor Carry-All	07:10	Gas Tank Lock, Plow Yard Sign



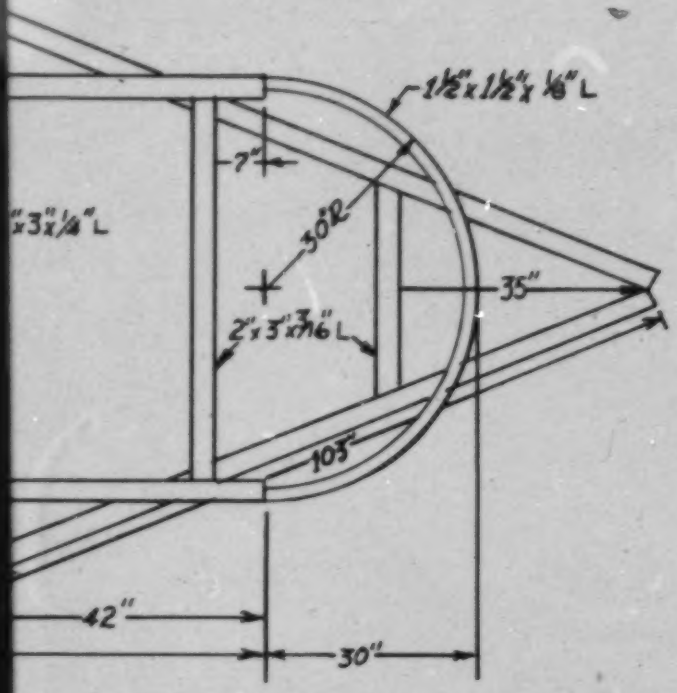
MAIN FRAME

REAR VIEW



REAR GATE OUTSIDE MEASUREMENTS 4'7"x4'9"
REAR GATE DOOR SLIDES ON 1½" PIPE, OUTSIDE MEASUREMENTS 2'2"x4'6"

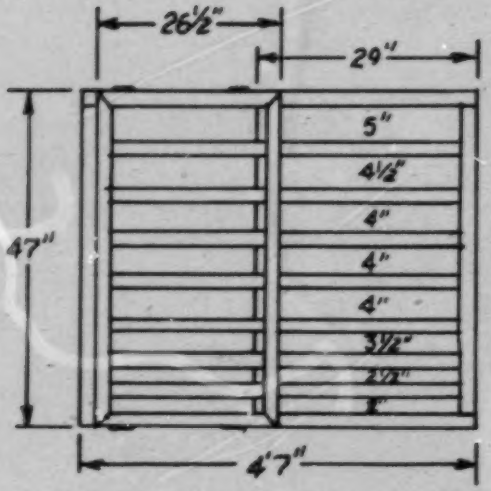
Courtesy of Guthrie
Vocational Agriculture Department



Stock Trailer

Scale: ½" = 1'

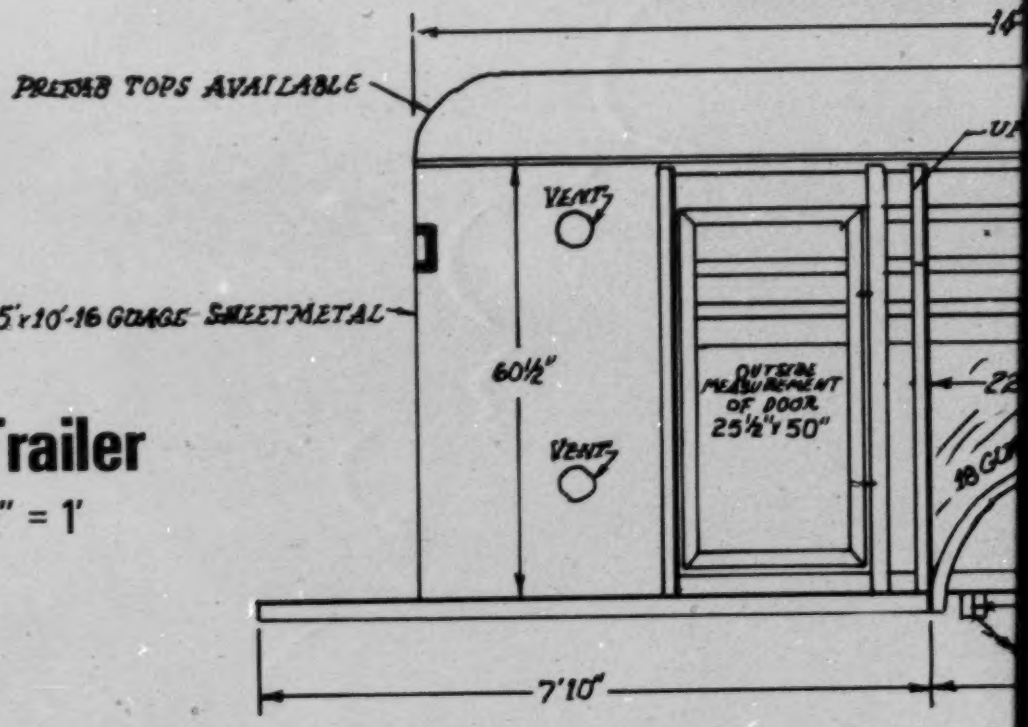
CENTER GATE



DWN BY: JOHN McEACHERN

Stock Trailer

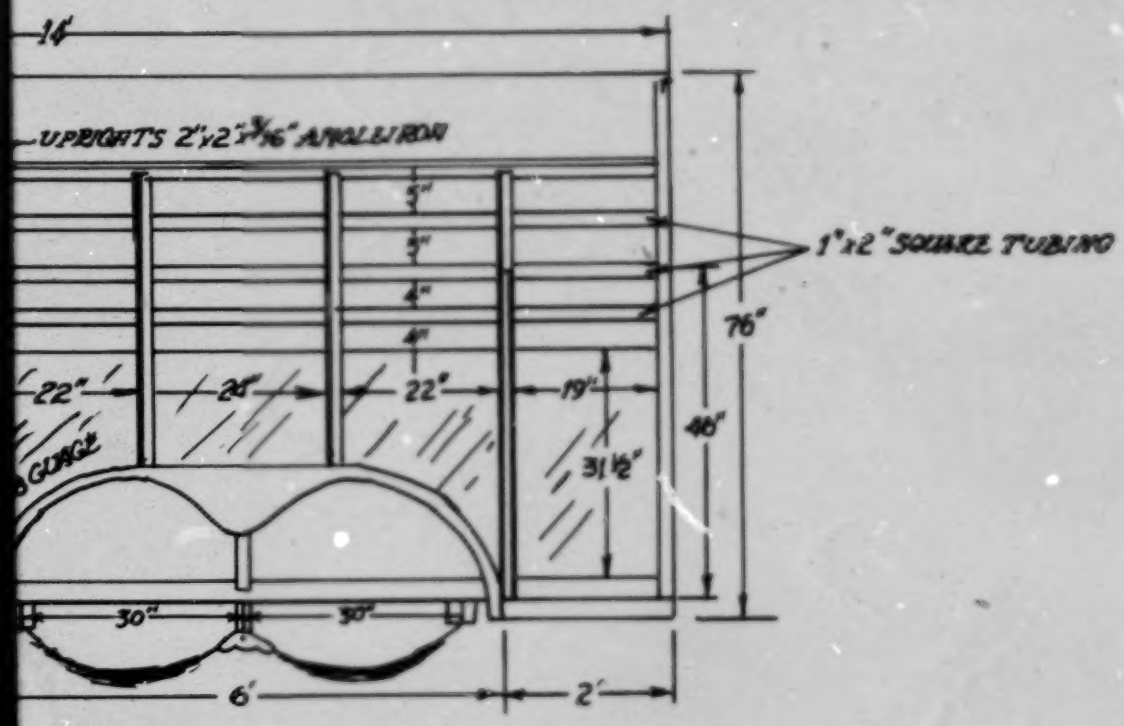
Scale: ½" = 1'



BILL OF MATE

2 PIECES OF 3" ANGLEIRON 11'6" LONG	2 PI
3 PIECES OF 3" ANGLEIRON 81 ½" LONG	4 PIE
2 PIECES OF 3" ANGLEIRON 103" LONG	4 PIE
2 PIECES OF 3" ANGLEIRON 54" LONG	12 PIE
2 PIECS OF 2" ANGLEIRON 54" LONG	2 - ½
1 PIECE OF 1½" ANGLEIRON 15'8½" LONG	1 - ½
1 PIECE OF 3" PIPE 81½" LONG	4 PI
2 PIECES OF 2½" ANGLEIRON 6'1" LONG	2 PIE
1 PREFAB TOP	4 PIE
8 PIECES OF 2" ANGLEIRON 5" LONG	1 PIE
4 PIECES OF 2" ANGLEIRON 3'5" LONG	7 PIE
2 PIECES OF 2" ANGLEIRON 6' LONG	2 PI
6 PIECES OF 1" SQ TUBING 4' LONG	7 PIE
2 PIECES OF 1½" SQ TUBING 4'9" LONG	2 PIE
2 PIECES OF 1"x2" SQ TUBING 4'7" LONG	2 PI
2 PIECES OF 1"x2" SQ TUBING 4'6" LONG	2 PI
2 PIECES OF 1½" SQ TUBING 2'2" LONG	3 PI
1 PIECE OF 1½" SQ TUBING 4'5" LONG	1 PIE
6 PIECES OF 1½" SQ TUBING 1'10" LONG	2 PI
8 BOARDS 2"x8"	1 PI

Courtesy of Guthrie
Vocational Agriculture Department



ERIAL
PIECES OF 1¼" PIPE 4' 9" LONG
PIECES OF 1½" PIPE 1½" LONG
PIECES OF STRAP IRON 1½"x4"x3/8"
PIECES OF ¾" PIPE 1½" LONG
½" PINS 5" LONG
½" ROD 4' LONG
PIECES OF FLAT METAL 2½"x2½"
PIECES OF 1"x2" SQ TUBING 4'7" LONG
ICES OF 1"x2" SQ TUBING 47" LONG
ECE OF 1"x2" SQ TUBING 43" LONG
PIECES OF 1"x2" SQ TUBING 25" LONG
PIECES OF 1"x2" SQ TUBING 26½" LONG
PIECES OF 1"x2" SQ TUBING 22½" LONG
PIECES OF 1"x2" SQ TUBING 25½" LONG
PIECES OF 1"x2" SQ TUBING 50" LONG
PIECES OF 1"x2" SQ TUBING 21½" LONG
IECES OF SHEET METAL 2'x2'6"
IECE OF SHEET METAL 2'x2'4"
IECES OF SHEET METAL 8'6"x 31½"
IECE OF SHEET METAL 5'x10"

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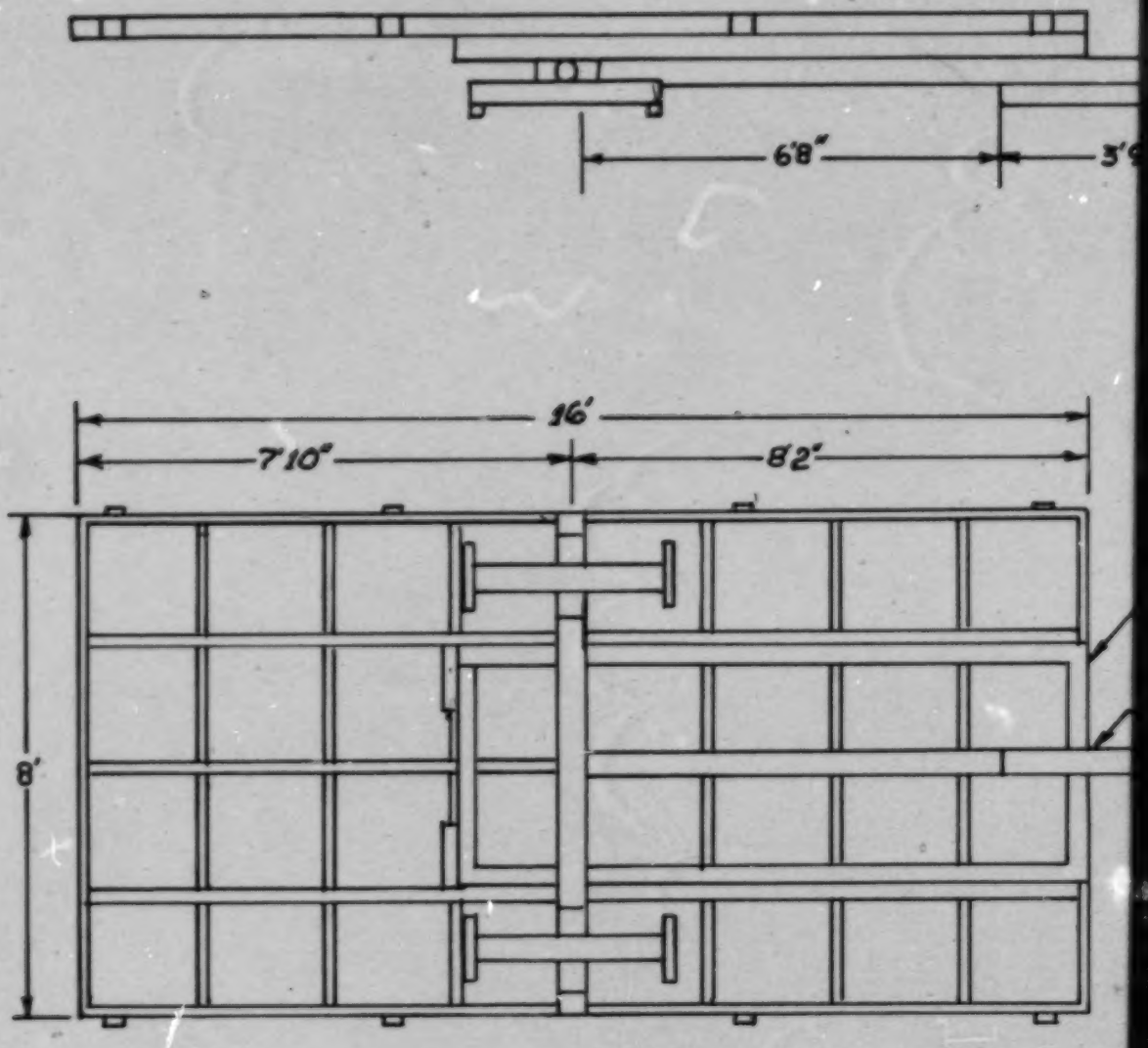
Stillwater, Oklahoma

Tilting Trailer

Scale: 3/8" = 1'



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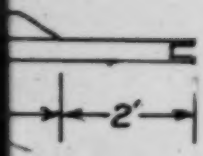
State Department of Vocational and Technical Education

Stillwater, Oklahoma

Courtesy of Jet-Nash
Vocational Agriculture Department

BILL OF MATERIAL

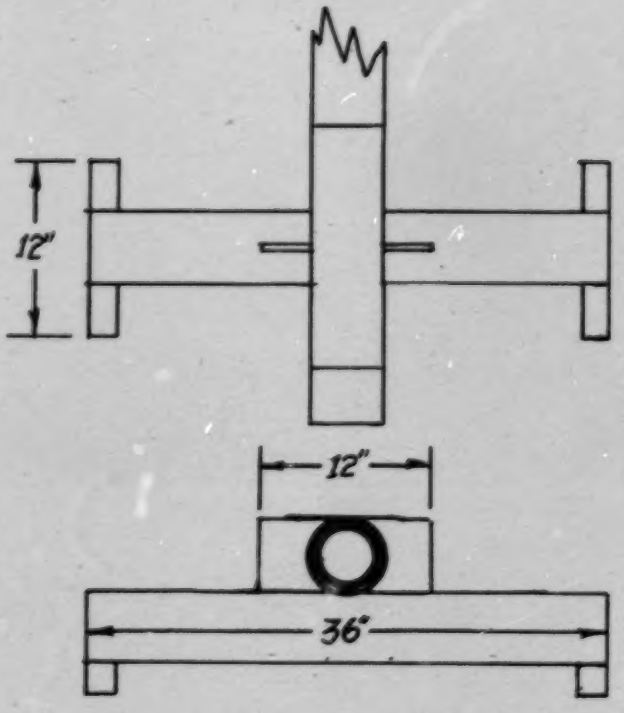
1 PIECE OF 1/4" x 8' x 16' FLAT IRON
5 PIECES OF 4" CHANNEL IRON 16' LONG
9 PIECES OF 4" CHANNEL IRON 8' LONG
12 PIECES OF 4" CHANNEL IRON 4" LONG
2 PIECES OF 4" SQUARE BOXING 10' LONG
2 PIECES OF 4" SQUARE BOXING 46" LONG
2 PIECES OF 4" SQUARE BOXING 36" LONG
1 PIECE OF 4" PIPE 8' LONG
1 PIECE OF 5" PIPE 8' LONG
1 PIECE OF 4" PIPE 10' 5" LONG
1 PIECE OF 3 1/2" PIPE 5' 9" LONG
2 PIECES OF 2 1/2" PIPE 6" LONG
2 PIECES OF 2" PIPE 1' LONG
2 PIECES OF 1/2" x 5" x 12" FLAT IRON
2 BED HOLD DOWN CATCHS



"BOX 46" x 10'

CATCH ON BOTH SIDES
TO HOLD DOWN BED

AXEL DETAIL
SCALE: 1" = 1'

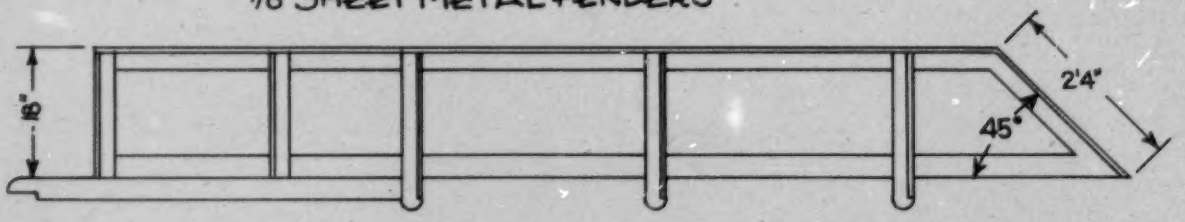


DWN BY: JOHN McEACHERN

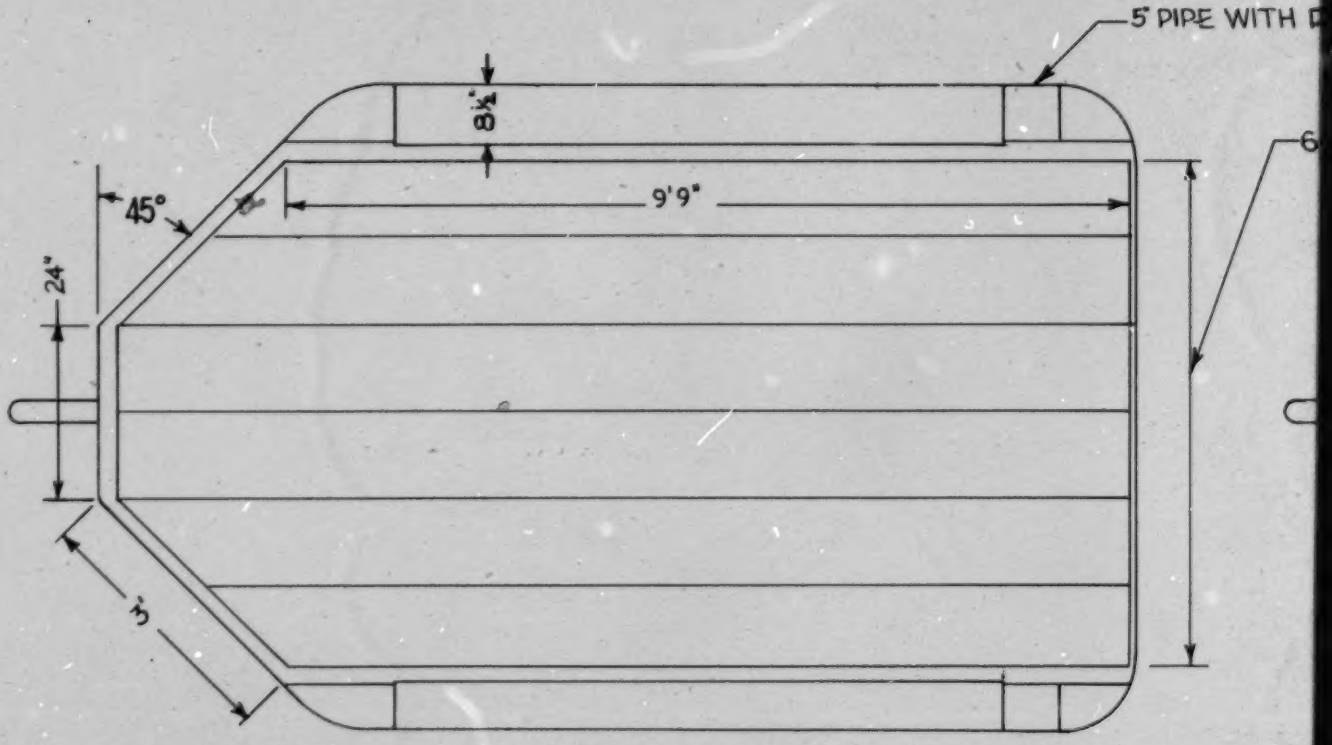
NOTE: CENTER OF AVELS ARE LOCATED
1/2" BACK OF CENTER FOR EVERY
FOOT OF LENGTH

TOTAL LENGTH: 12'
TOTAL WIDTH: 7'6"

NOTE: 1/8" SHEET METAL SIDES
1/8" SHEET METAL FENDERS



SIDE VIEW



TOP VIEW

Courtesy of Eufaula
Vocational Agriculture Department

Curriculum and Instructional M
State Department of Vocational and
Stillwater, Oklahon

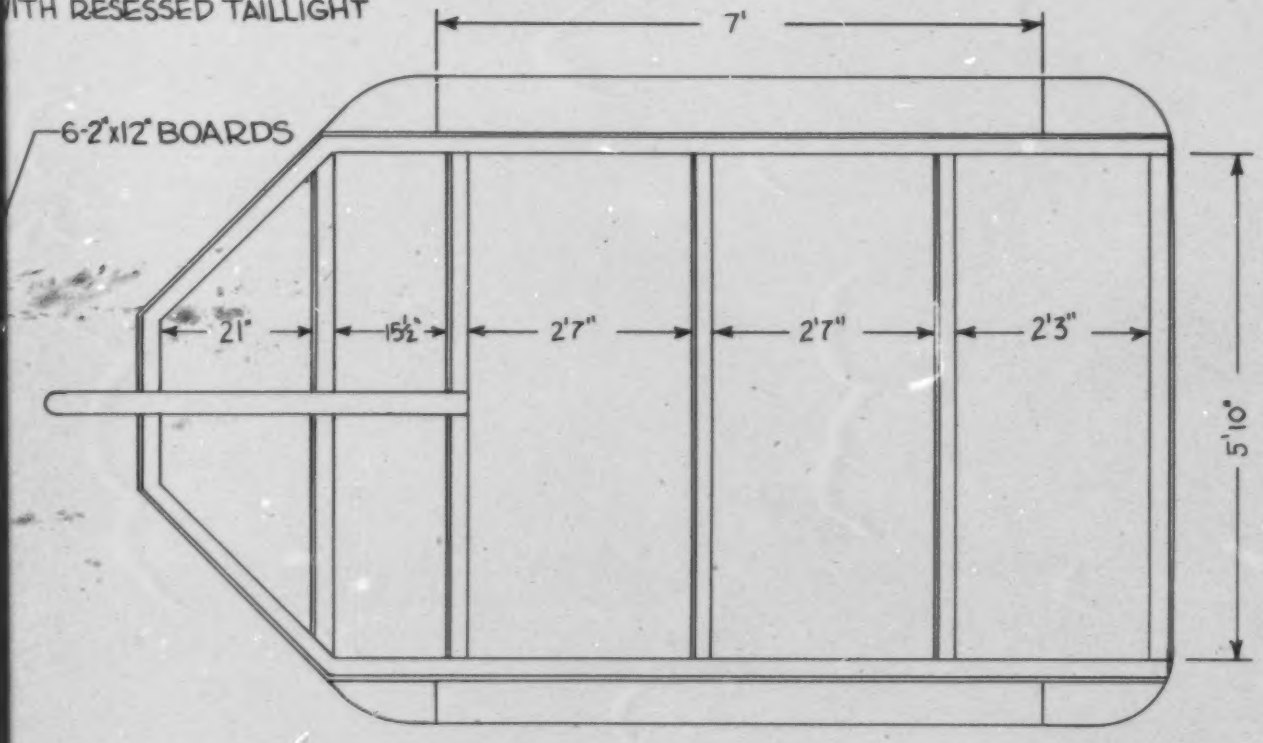
All Purpose Trailer

Scale: 1/2"=1'

BILL OF MATERIAL

4 Pieces of 3" Angle Iron 10'1" Long
4 Pieces of 3" Angle Iron 3' Long
2 Pieces of 3" Angle Iron 2" Long
4 Pieces of 3" Angle Iron 6'2" Long
1 Piece of 3" Angle Iron 6' Long
10 Pieces of 3" Angle Iron 17 1/2" Long
2 Pieces of 3" Angle Iron 2'4" Long
2 Pieces of 1/8" Sheetmetal 7' X 8 1/2"
2 Pieces of 1/8" Sheetmetal 2'4" X 8 1/2"
2 Pieces of 1/8" Sheetmetal 1'11" X 8 1/2"
6 - 2" X 12" X 11'9" Boards
2 Pieces of 1/2" Sheetmetal 7'9" X 17"
2 Pieces of 1/8" Sheetmetal 3' X 17"
1 Piece of 1/8" Sheetmetal 2' X 17"

ITH RESESSED TAILLIGHT



BOTTOM FRAME VIEW

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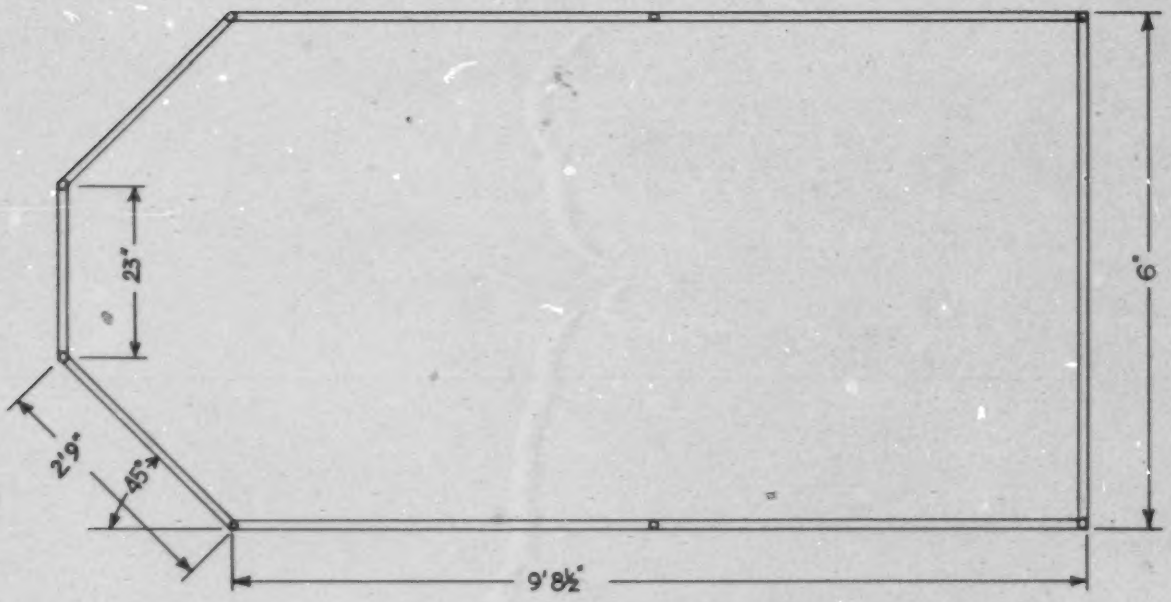
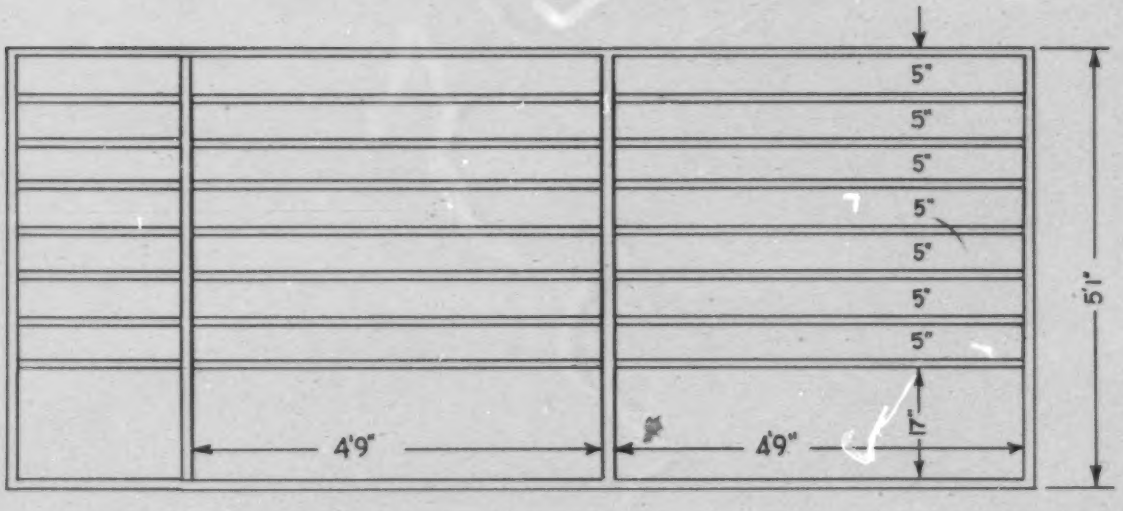
NOTE: ALL FRAME WORK-3" ANGLE IRON

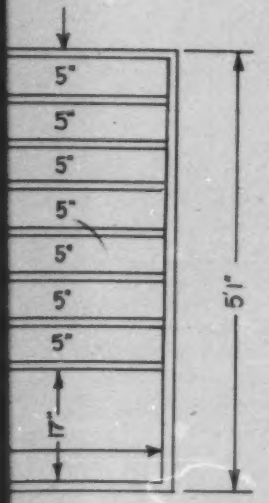


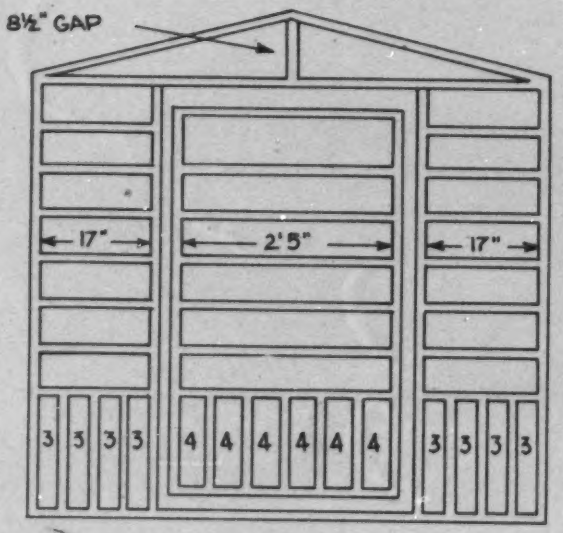
NOTE: RACKS ARE HELD IN WITH SPRING LOADED BOOMERS



BILL OF MATERIAL

8 Pieces of 1" Pipe 5" Long
2 Pieces of 1" Pipe 4'1" Long
2 Pieces of 1" Pipe 4'6" Long
6 Pieces of 1" Pipe 17" Long
5 Pieces of 1" Pipe 1'2" Long
9 Pieces of 1" Pipe 23" Long
18 Pieces of 1" Pipe 2'9" Long
36 Pieces of 1" Pipe 4'9" Long
2 Pieces of 1" Pipe 5'10" Long
2 Pieces of 1" Pipe 2'7" Long
14 Pieces of 1" Pipe 17" Long
6 Pieces of 1" Pipe 2'5" Long
1 Piece of 1" Pipe 8 1/2" Long
2 Pieces of 1" Pipe 37" Long
2 Pieces of 1" Pipe 4" Long
1 Piece of 1" Pipe 7" Long
3 Pieces of 1 1/2" Pipe 3" Long
4 Pieces of 1 1/2 Pipe 1 1/2" Long

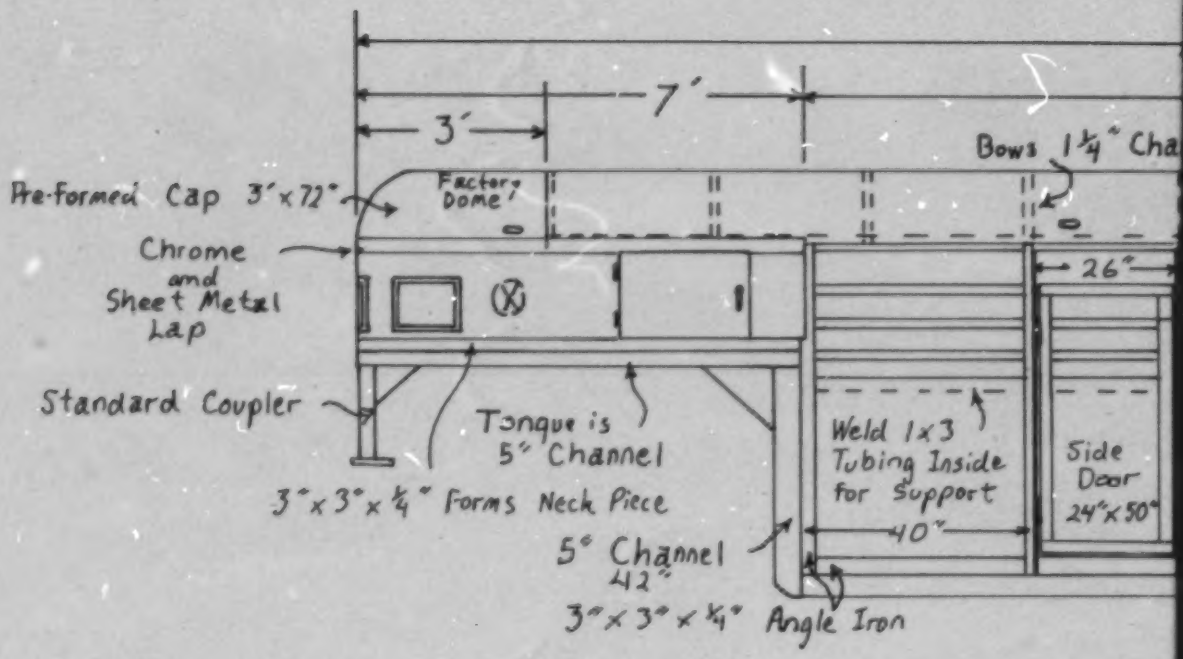




GATE OUTSIDE MEASUREMENTS 4'6" X 2'7"

Gooseneck S

Scale: 3



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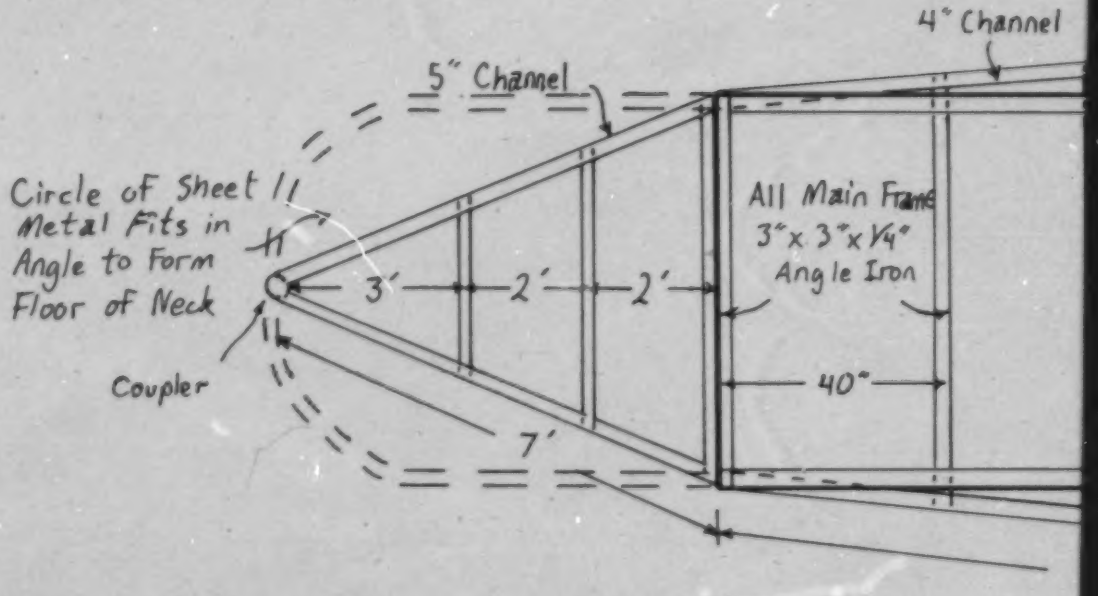
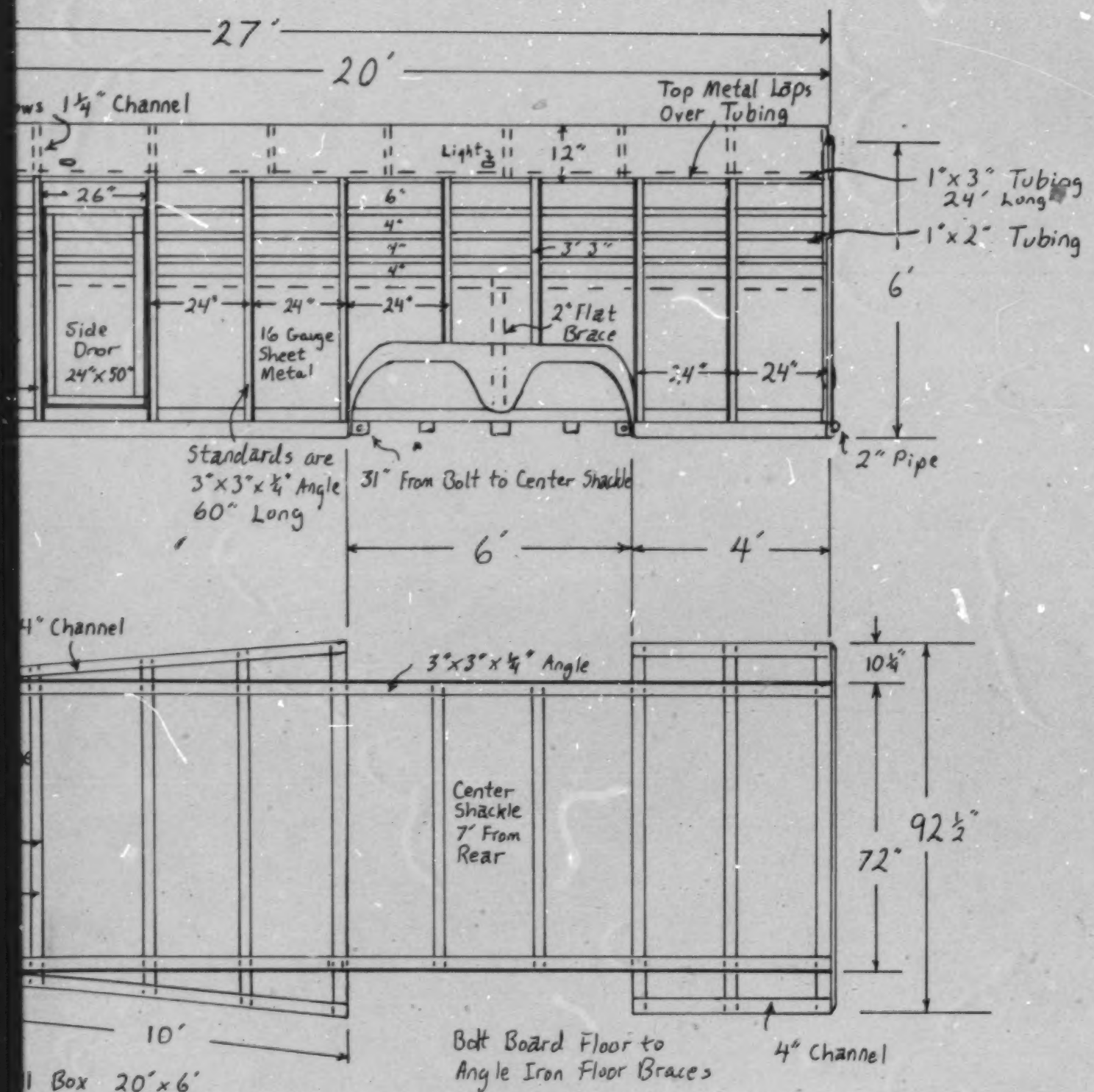


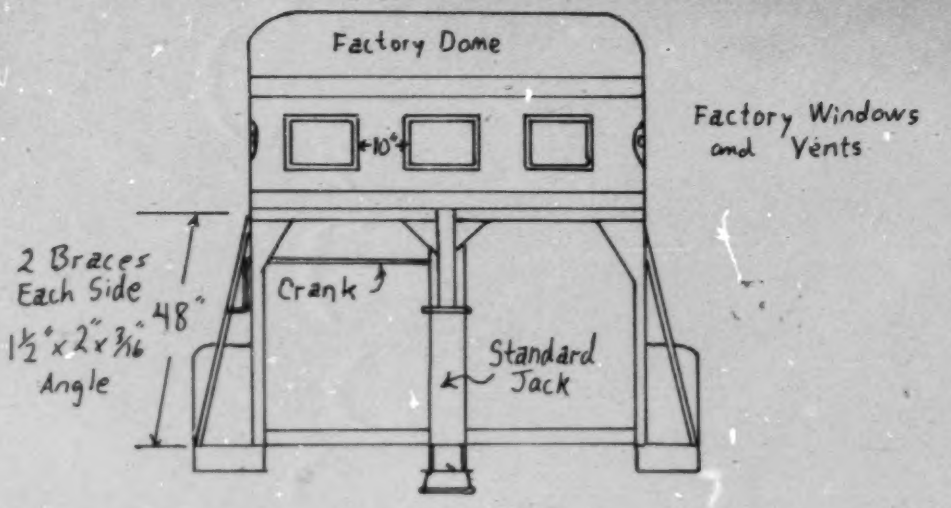
Overall Box 2

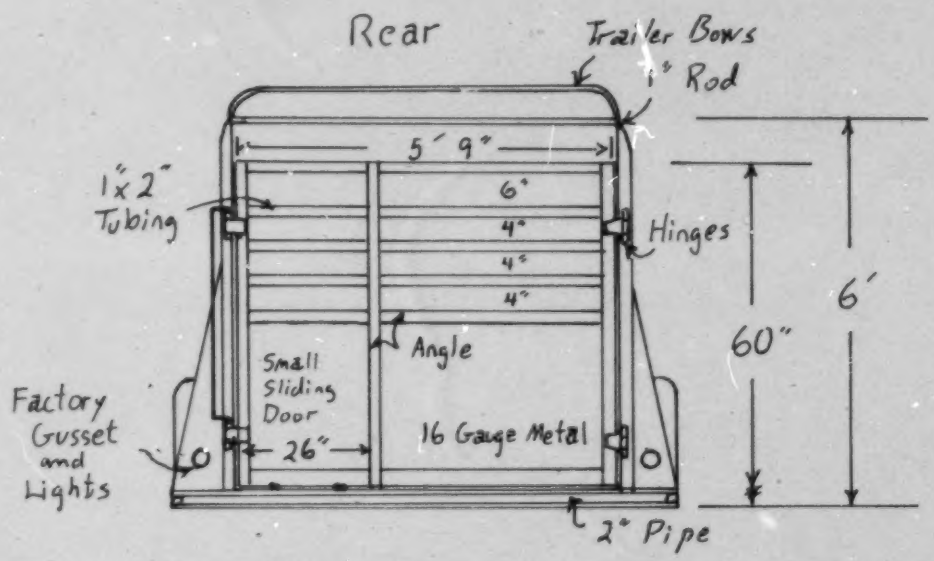
Courtesy of Guthrie
Vocational Agriculture Department

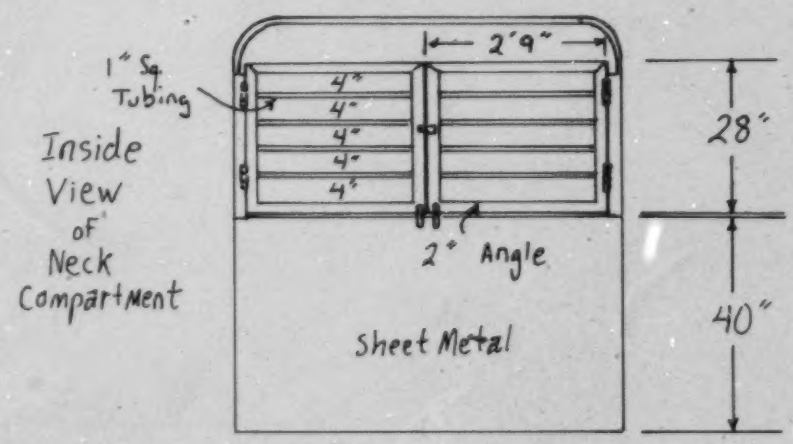
neck Stock Trailer

Scale: 3/8"=1'









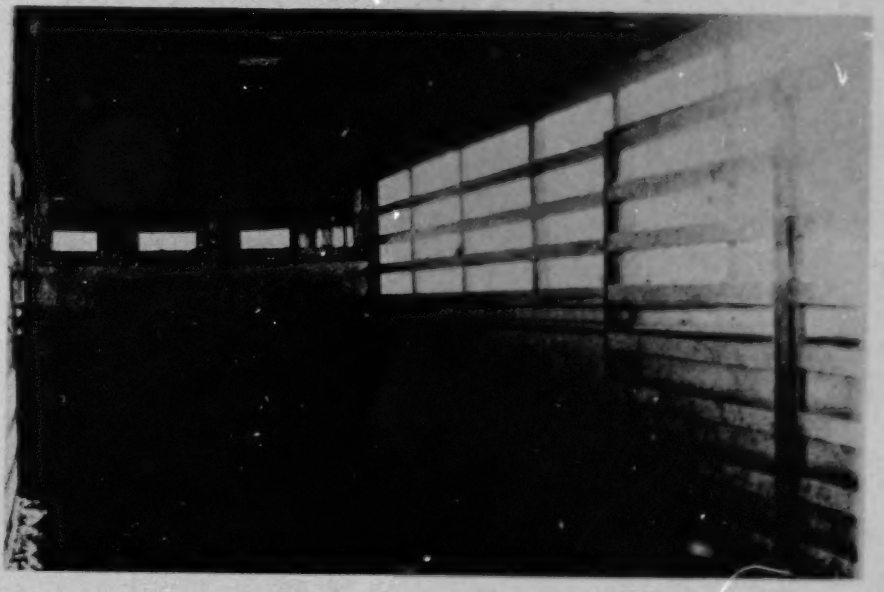
BILL O

2 Pieces of D5086 E
1 Pair of 10 3/4" x
1 Set of 6 Leaf Spr
1 Set of 2" 4 Bolts
1 Goose Neck Hitch
1 Landing Gear
1 Pair of Tail Light
2 Pair of 1/4" Guss
1 Piece of 3/4" Pip
1 Piece of 9/16" Ro
1 Piece of 3/4" Roc
1 Piece of 9/16" St
2 Sets of Gate Char
1 Piece of 5" Chan
100' of 3" X 3" X
40' of 4" Channel
40' of 3" X 3" X
40' of 4" Channel
40' of 3" X 3" X
40' of 3" X 2" X
100' of 2" X 2" X
100' of 2" X 1 1/2
20' of 2 1/2" X 2
48' of 1" X 3" Tub
200' of 1" X 2" Tu
20' of 1" Tubing
1 Piece of 16 Guag
2 1/2 Pieces of 16
100 Floor Screws a
1 Piece of Crown 7
3 Pieces of 20 Gua
9 Pieces of Trailer
5 Pieces of 16 Gua
Also Flush Mount T
150 X 16-8 Ply Tir
16" Wheels, Plastic and Chrome

Middle Gate Inside, is Made of 1"x2" Tubing Iron 4'x6' Overal Tubing with Angle St

BILL OF MATERIAL

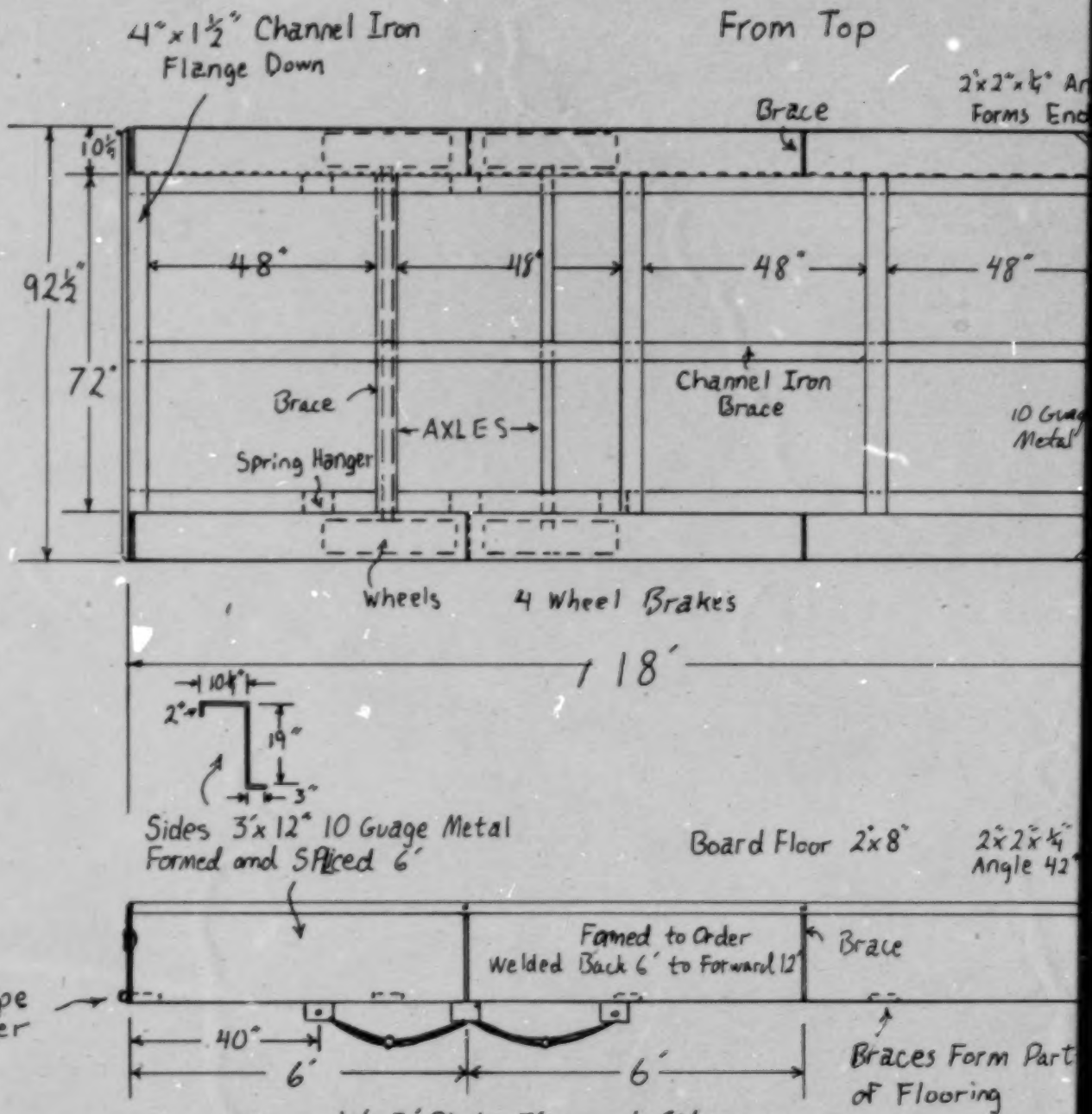
- s of D5086 Brake Axles
- of 10 3/4" x 72" Fenders
- f 6 Leaf Springs
- f 2" 4 Bolts w/Plates
- Neck Hitch
- ng Gear
- f Tail Light Gussets
- f 1/4" Gussets
- of 3/4" Pipe 21' Long
- of 9/16" Rod 20' Long
- of 3/4" Rod 20' Long
- of 9/16" Strap 10' Long
- f Gate Channel
- of 5" Channel 20' Long
- 3" X 3" X 1/4" Angle Iron
- " Channel Iron
- " X 3" X 1/4" Angle Iron
- " Channel Iron
- " X 3" X 1/4" Angle Iron
- " X 2" X 3/16" Angle Iron
- 2" X 2" X 1/8" Angle Iron
- 2" X 1 1/2" X 3/16" Angle Iron
- 1/2" X 2 1/2" X 3/16" Angle Iron
- " X 3" Tubing
- 1" X 2" Tubing
- " Tubing
- f 16 Guage Nose Sheet 60" X 120"
- ces of 16 Guage Sheet 60" X 109"
- r Screws and 1 2 5/16" Ball
- f Crown 72" Wide
- of 20 Guage Sheet Metal 72" X 96"
- of Trailer Bows 72" Wide
- of 16 Guage Sheet Metal 11' X 36"
- h Mount Tail Lights, Wiring, Jack Handle,
- 8 Ply Tires, Vents, Dome Lights,
- ls, Plastic Windows, Nose Side Door,
- me



ide, is 10' From Rear
Tubing and Angle
Overall 4" Gap Between
gle Standard in Center

Gooseneck Trailer an

Scale: 3



Courtesy of Glencoe
Vocational Agriculture Department

and Slide-In Stock Racks

le: 3/8"=1'

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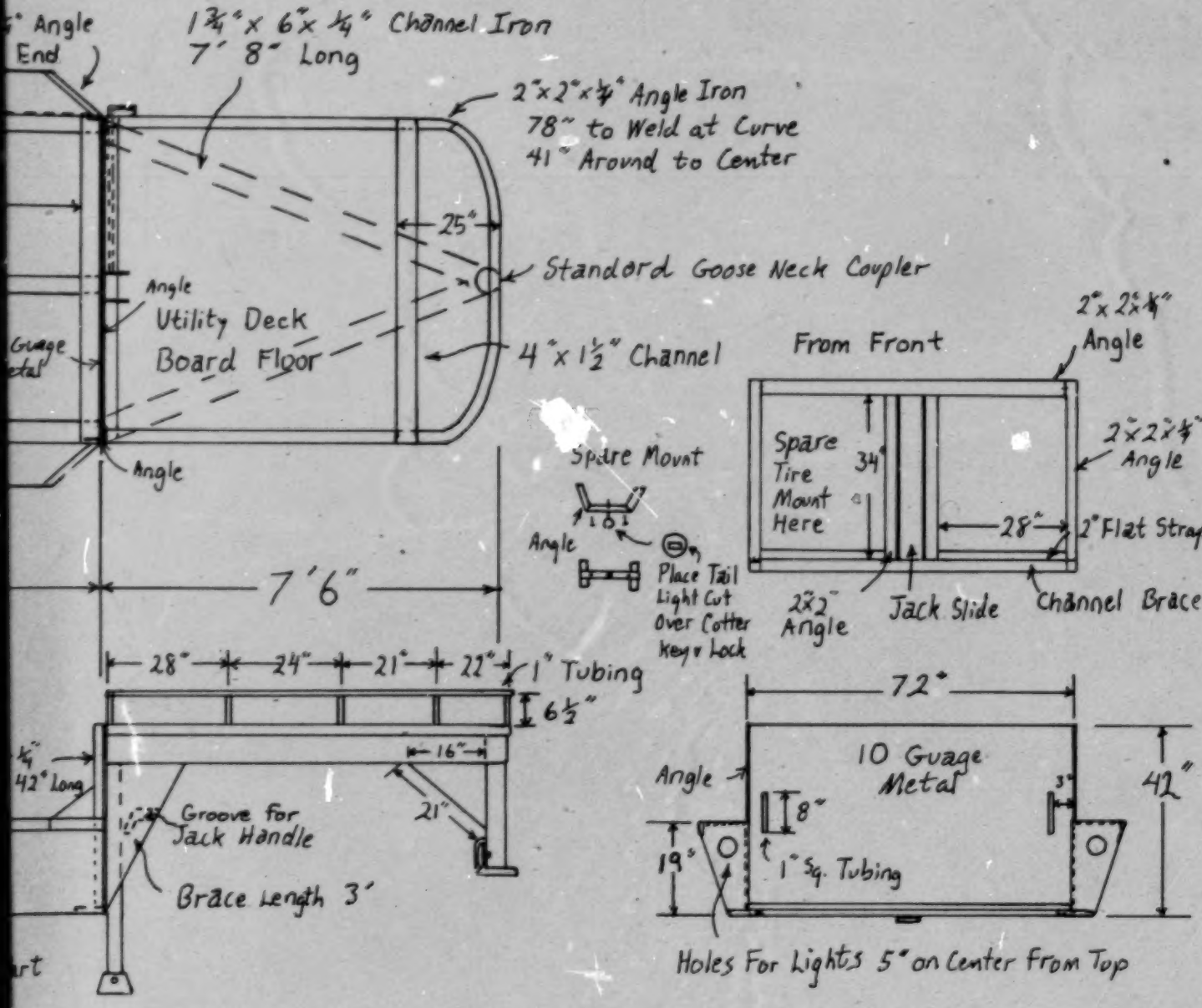
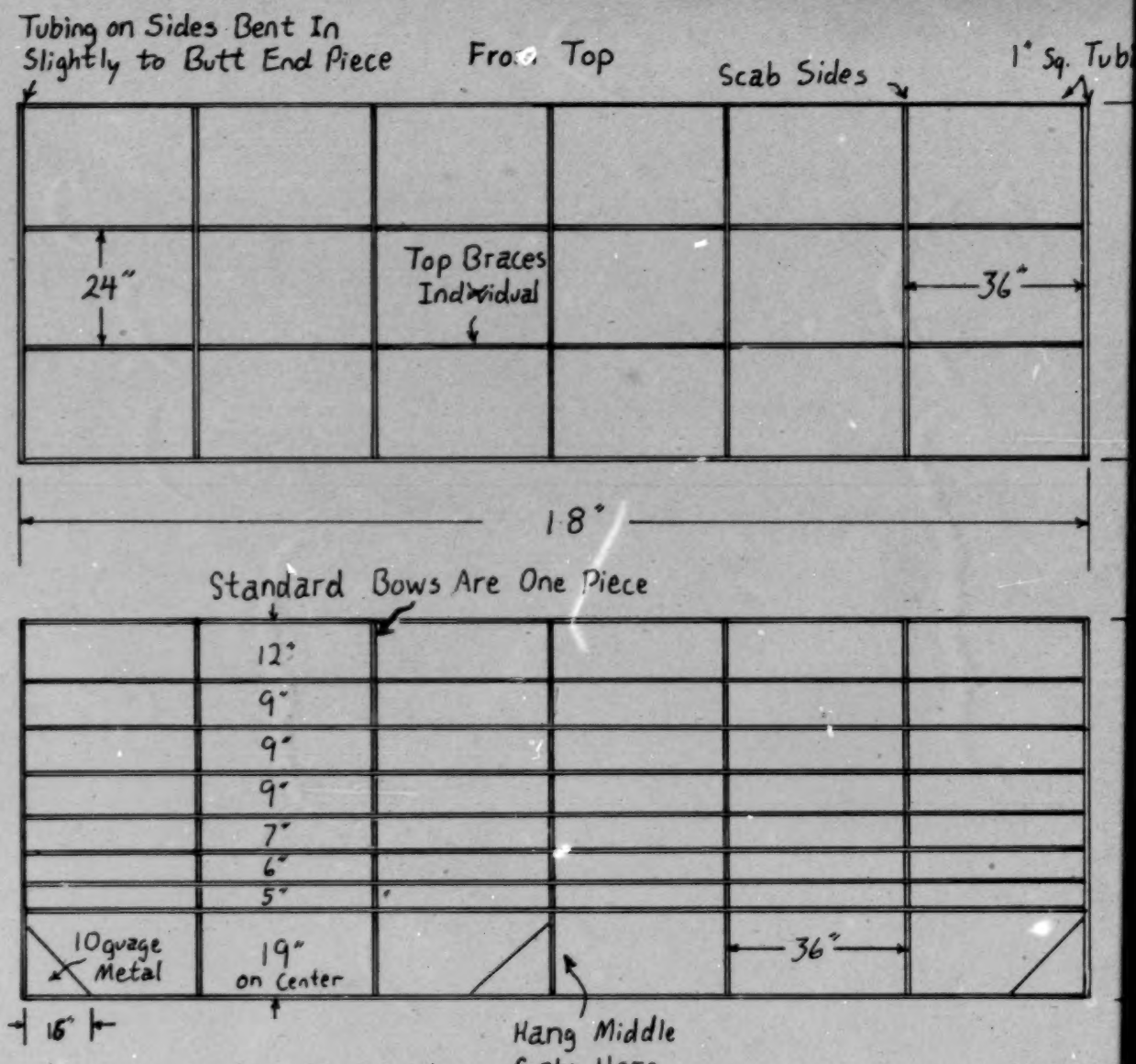
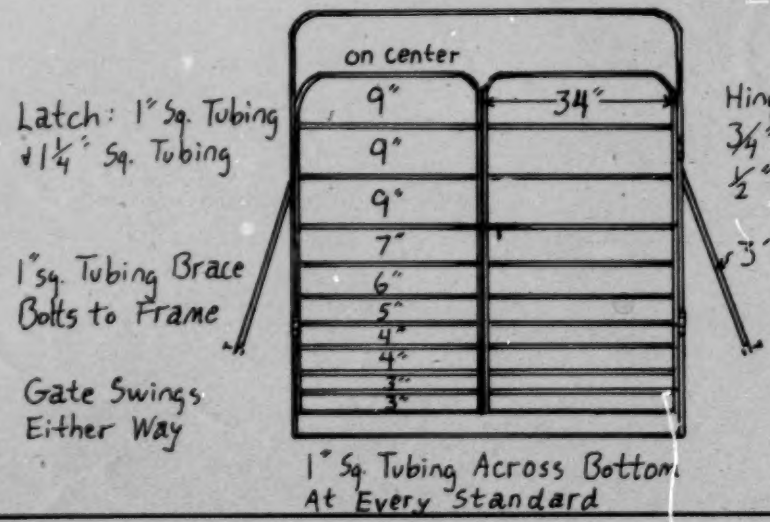
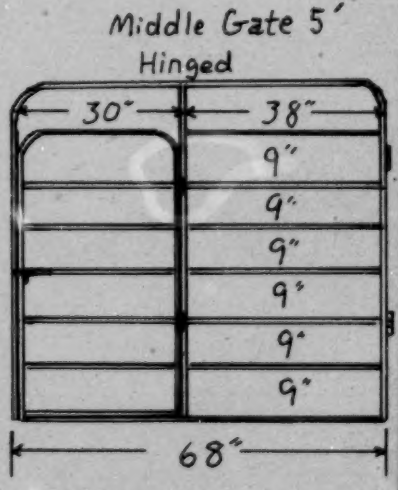
State Department of Vocational and Technical Education
Stillwater, Oklahoma

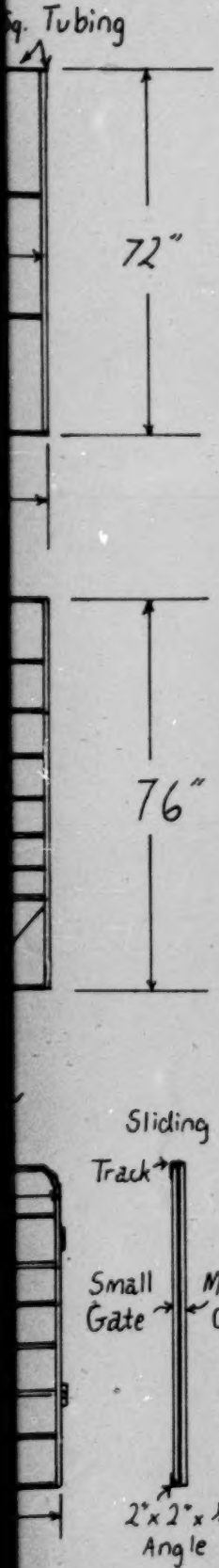


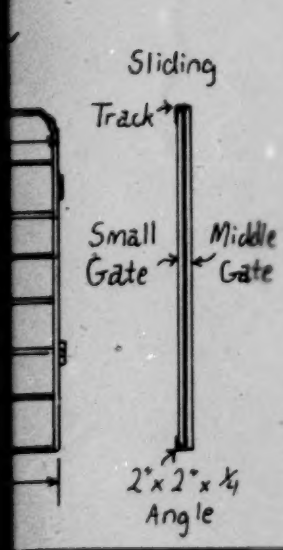
Slide-In Stock Racks

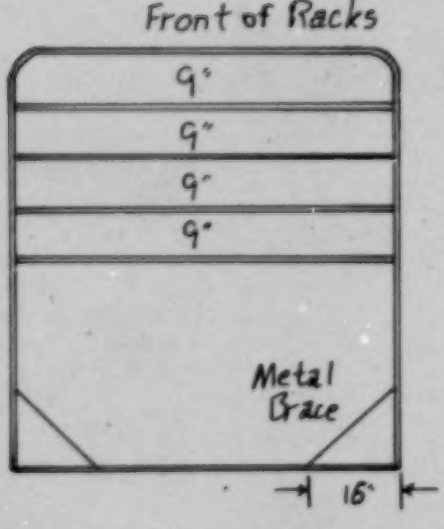










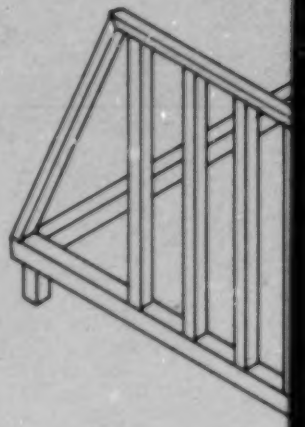


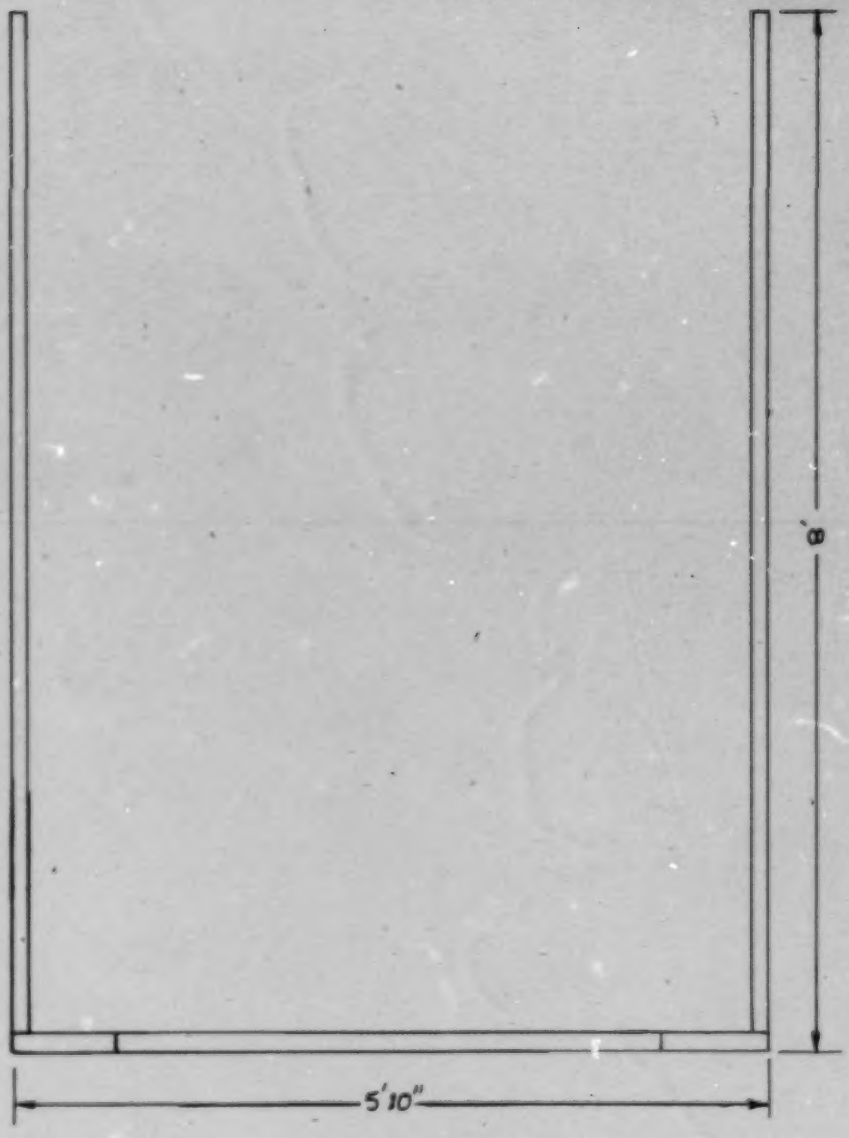
BILL OF MATERIAL

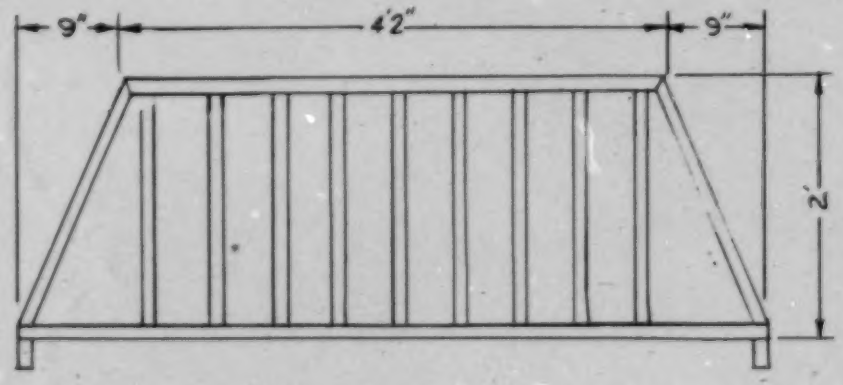
2 Pieces of Formed Steel 12' Long
2 Pieces of Formed Steel 6' Long
6 Pieces of 4" x 1 1/2" Channel Iron 72" Long
1 Piece of 4" x 1 1/2" Channel Iron 18' Long
1 Piece of 2" Bar 92 1/2" Long
6 Pieces of 10 Guage Metal 11" x 19"
2 Pieces of 2" x 2" x 1/4" Angle Iron 42" Long
1 Piece of 10 Guage Metal 42" x 72"
1 Piece of 2" x 2" x 1/4" Angle Iron 72" Long
2 Pieces of 2" Flat Metal 28" Long
2 Pieces of 2" x 2" x 1/4" Angle 34" Long
1 Piece of 2" x 2" x 1/4" Angle 20'6" Long
2 Pieces of 2" x 6" x 1/4" Channel 7'8" Long
1 Standard Coupler and Jack
2 6,000 lb. Capacity Axles and 6 Bolt Wheels
1 Piece of 1" Square Tubing 25' Long
1 Pieces of 10 Guage Metal 34" x 18 "
4 Pieces of 10 Guage Metal 16" x 16"
18 Pieces of 1" Square Tubing 18' Long
7 Pieces of 1" Square Tubing 18'8" Long
7 Pieces of 1" Square Tubing 72" Long
54' of 1" Square Tubing for Gates

Headb

Scale



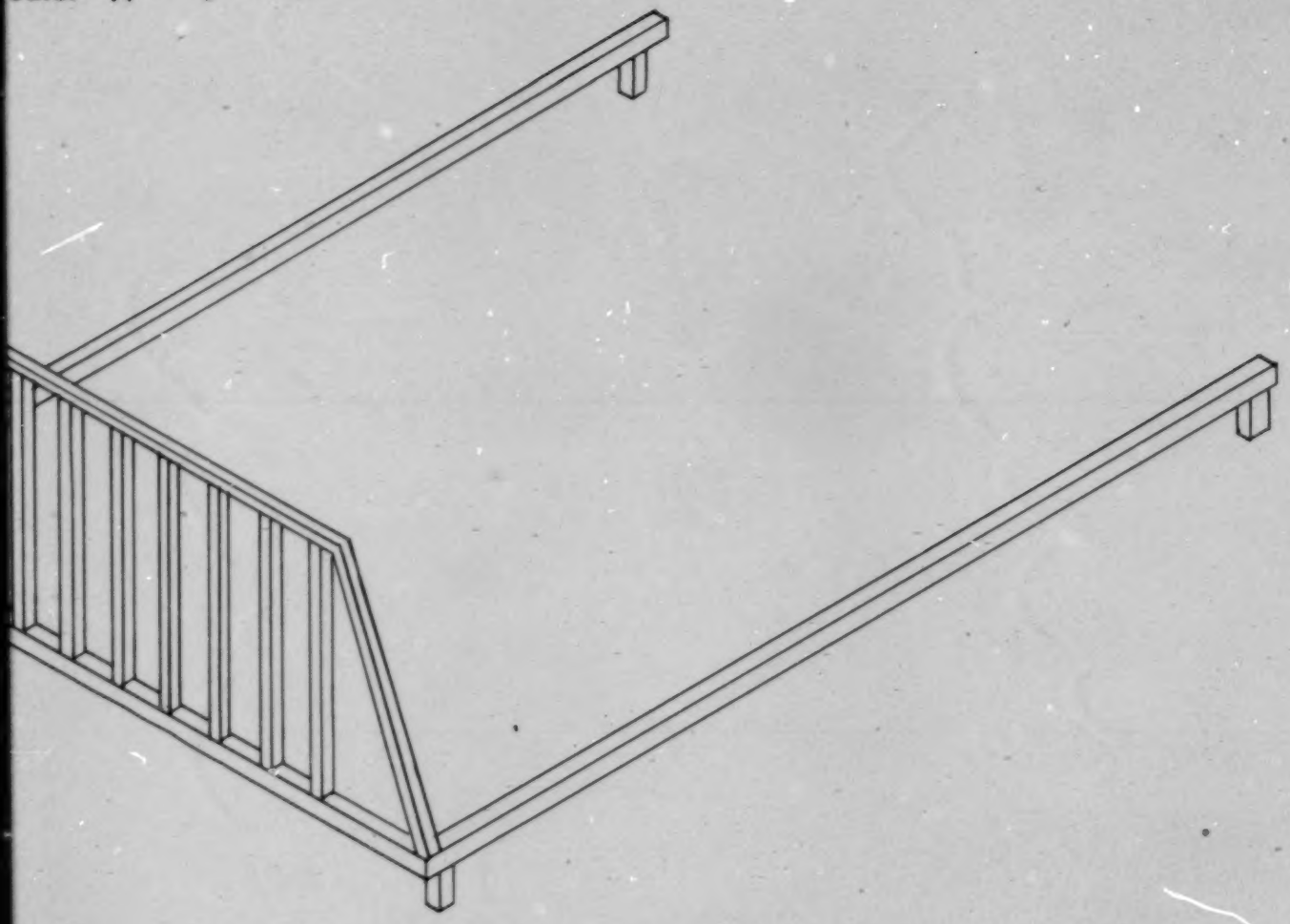




Courtesy of Jet-Nash
Vocational Agriculture Department

adache Rack

cale: ¾" = 1'



BILL OF MATERIAL

2 PIECES OF 1½" SQUARE TUBING	8' LONG
1 PIECE OF 1½" SQUARE TUBING	5' 10" LONG
9 PIECES OF 1" SQUARE TUBING	1' 10" LONG
2 PIECES OF 1" SQUARE TUBING	2' 8" LONG
1 PIECE OF 1" SQUARE TUBING	4' 2" LONG
4 PIECES OF 1½" SQUARE TUBING	4" LONG

Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

DWN BY: JOHN McEACHERN

Scale: 4

BILL OF MATERIALS

4 PIECES OF 1¼" SQ. TUBING	4'2" LONG
2 PIECES OF 1¼" SQ. TUBING	3'10" LONG
2 PIECES OF 1" SQ. TUBING	7'10½" LONG
14 PIECES OF 1" SQ. TUBING	7'8" LONG
4 PIECES OF 1" SQ TUBING	5'7½" LONG
2 PIECES OF 1" SQ TUBING	7" LONG
2 PIECES OF 1" SQ TUBING	6" LONG
4 PIECES OF 1" SQ TUBING	1'10¾" LONG
2 PIECES OF 1" SQ TUBING	5'4¾" LONG
2 PIECES OF 1" SQ TUBING	5' LONG
4 PIECES OF 1" SQ TUBING	4'10" LONG
4 PIECES OF 1" SQ TUBING	4'7" LONG
6 PIECES OF 1" SQ TUBING	4'5" LONG
8 PIECES OF 1" SQ TUBING	3½" LONG
1 PIECE OF WIRE MESH	1'11" x 4'4½" LONG
1 PIECE OF ¾" ROD	16" LONG
4 PIECES OF 1" ROD	4" LONG
8 PIECES OF 1" SQ. TUBING	2" LONG
4 PIECES OF 1½" PIPE	2" LONG
3 PIECES OF 1" PIPE	2" LONG
4 PIECES OF 5/8" PIPE	1¼" LONG
4 MACHINE BOLTS-NUTS-WASHERS	½" x 5½"

(GATE HINGE

1" ROD 4" LONG

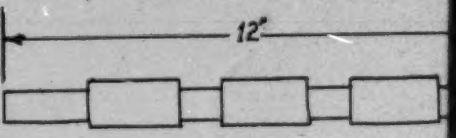
1" SQUARE TUBI

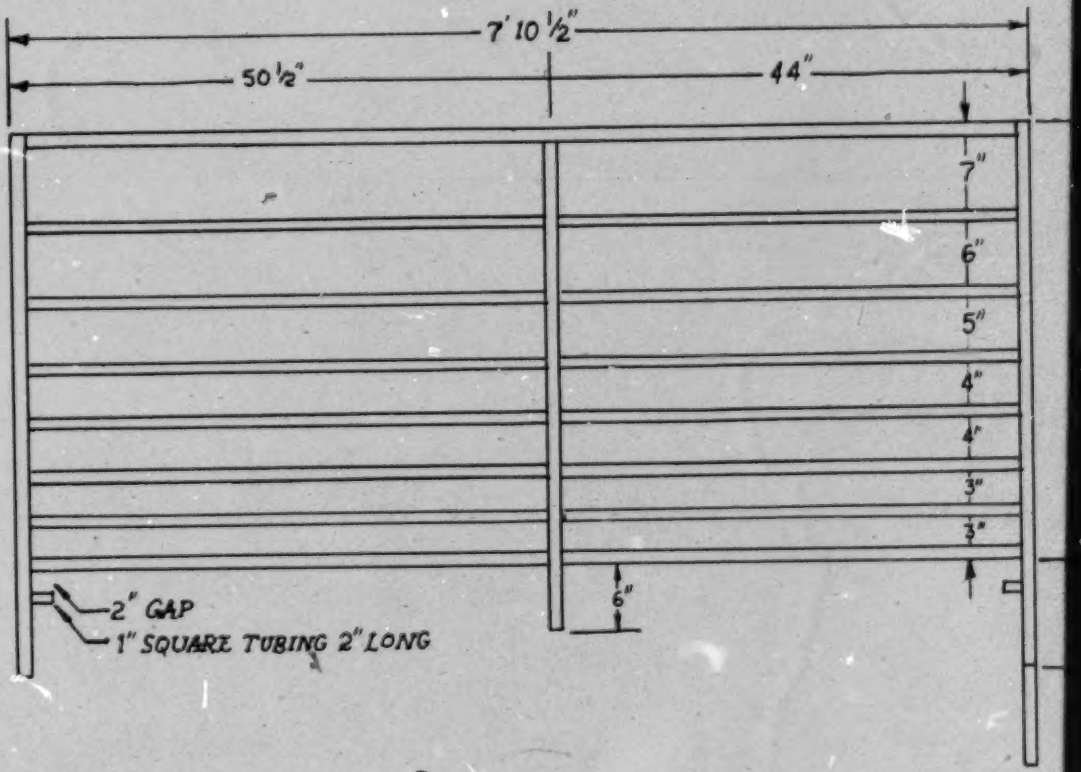
1¼" PIPE

(GATE LATCH DETAIL)

3 PIECES OF 1" PIPE 2" LONG

¾" ROD 12" LONG WITH 4"





SIDE

Courtesy of Vanoss
Vocational Agriculture Department

Curriculum and Instructional
State Department of Vocational an
Stillwater, Oklah

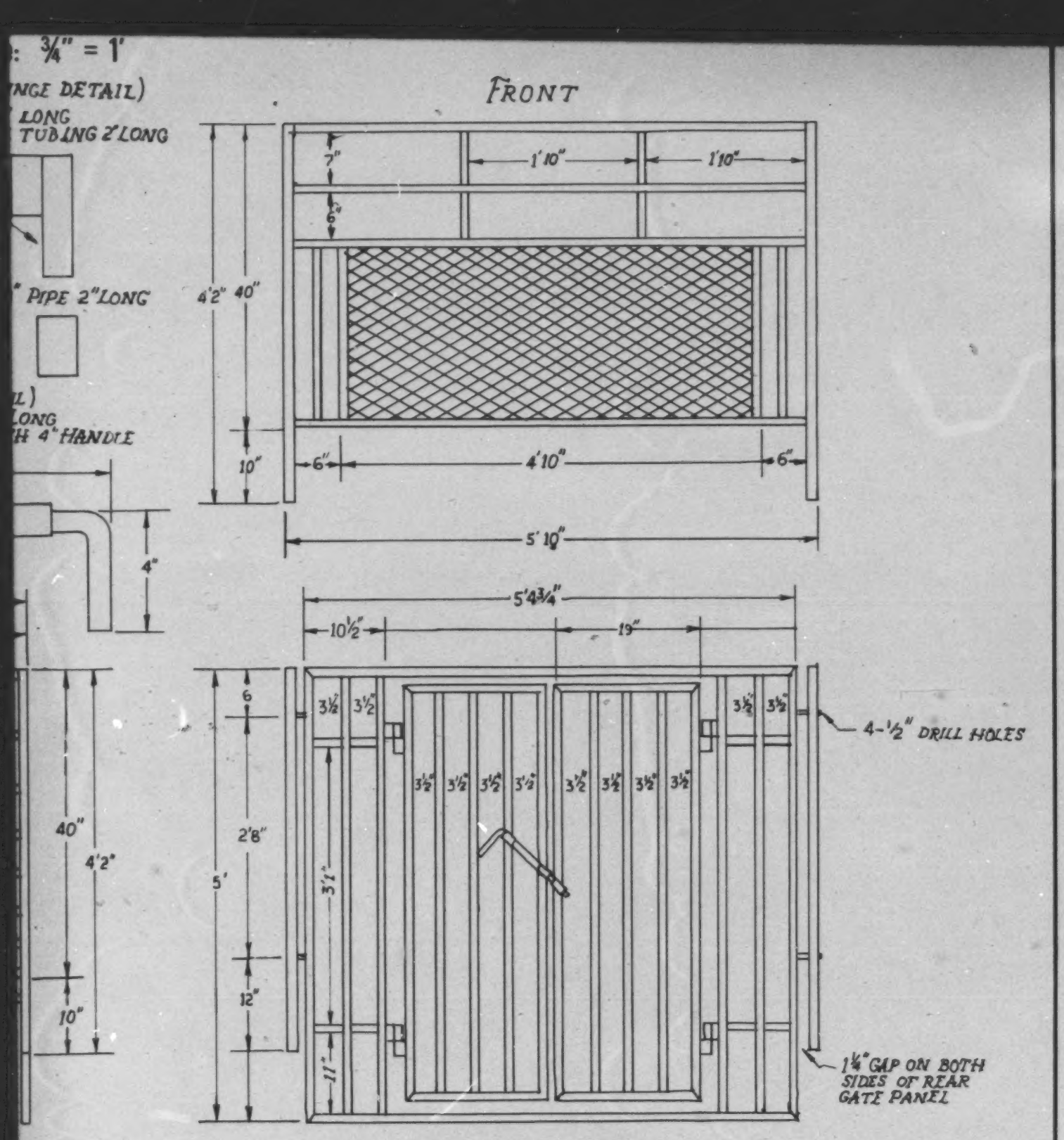
: 3/4" = 1'

NGE DETAIL)

LONG
TUBING 2' LONG

" PIPE 2" LONG

L)
LONG
H 4" HANDLE



1" GAP BETWEEN GATES
1" GAP ON TOP OF GATES
2" GAP ON BOTTOM OF GATES
GATE LATCH ON 45° ANGLE

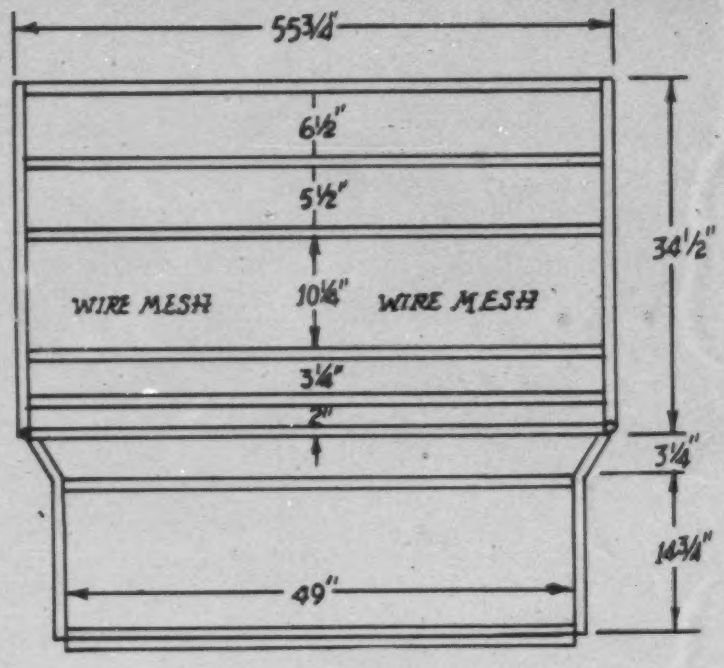
BACK

DWN BY: JOHN McEACHERN

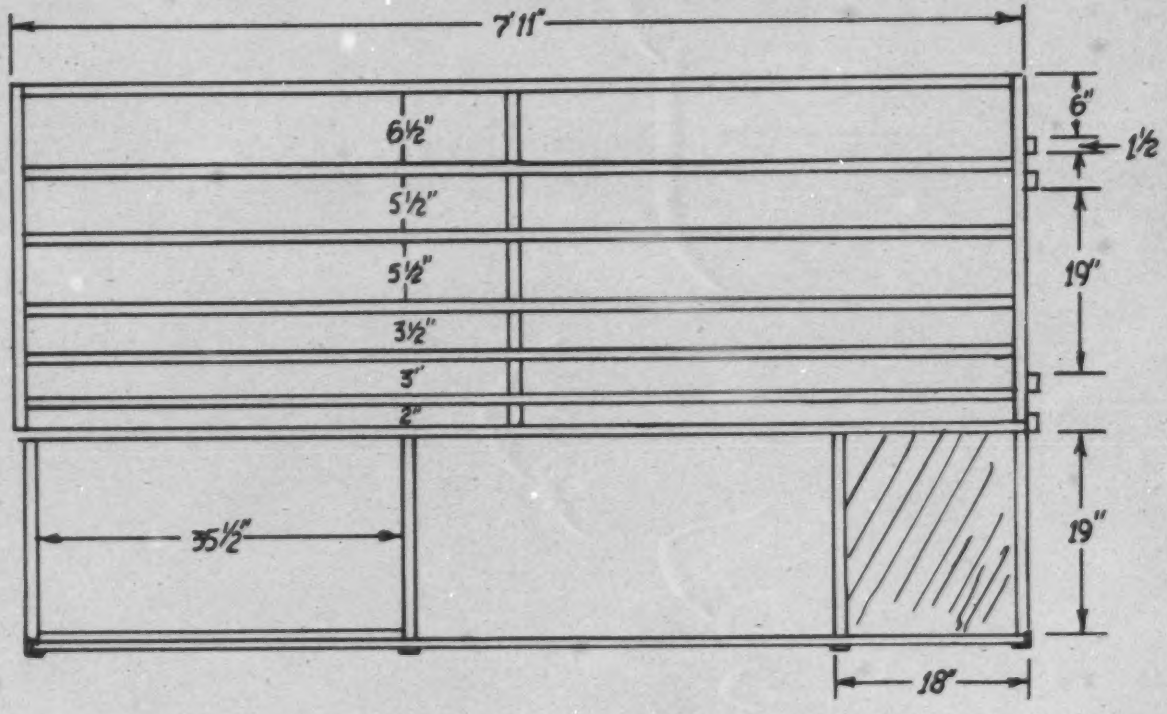
nal Materials Center
and Technical Education
klahoma

Pickup S

Scale:



BILL OF
4 SQUARE FEET OF
4 SQUARE FEET OF
8' OF 1" STRAP IR
12-2½" ROUND HE
24' OF 1"x6" FENCI
7' OF ¼" PIPE
265' OF ¾" PIPE

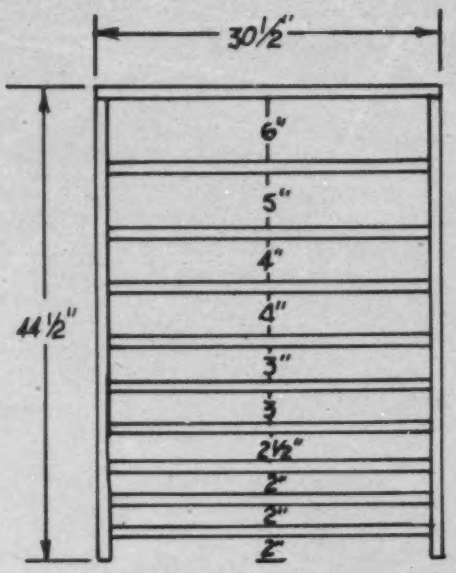


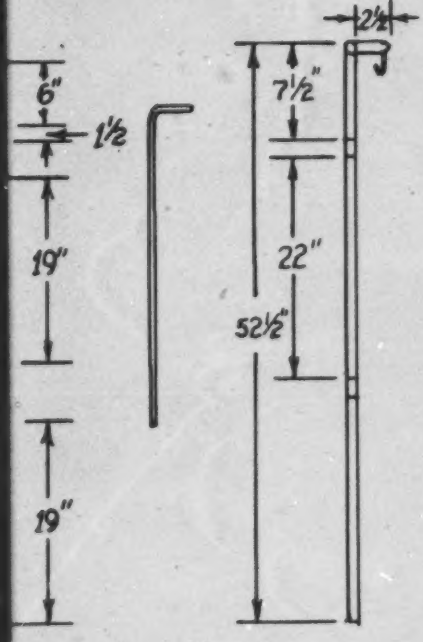
Courtesy of Guthrie
Vocational Agriculture Department

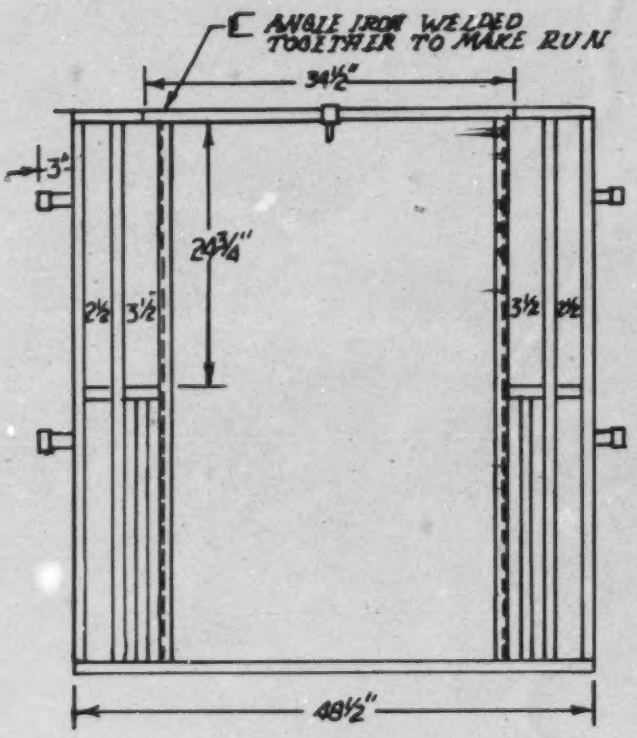
kup Stock Racks

Scale: 3/4" = 1'

BILL OF MATERIAL
RE FEET OF EXPANSION STEEL
RE FEET OF 18 GUAGE SHEETMETAL
STRAP IRON
ROUND HEAD STOVE BOLTS
"x6" FENCING LUMBER
" PIPE
3/4" PIPE







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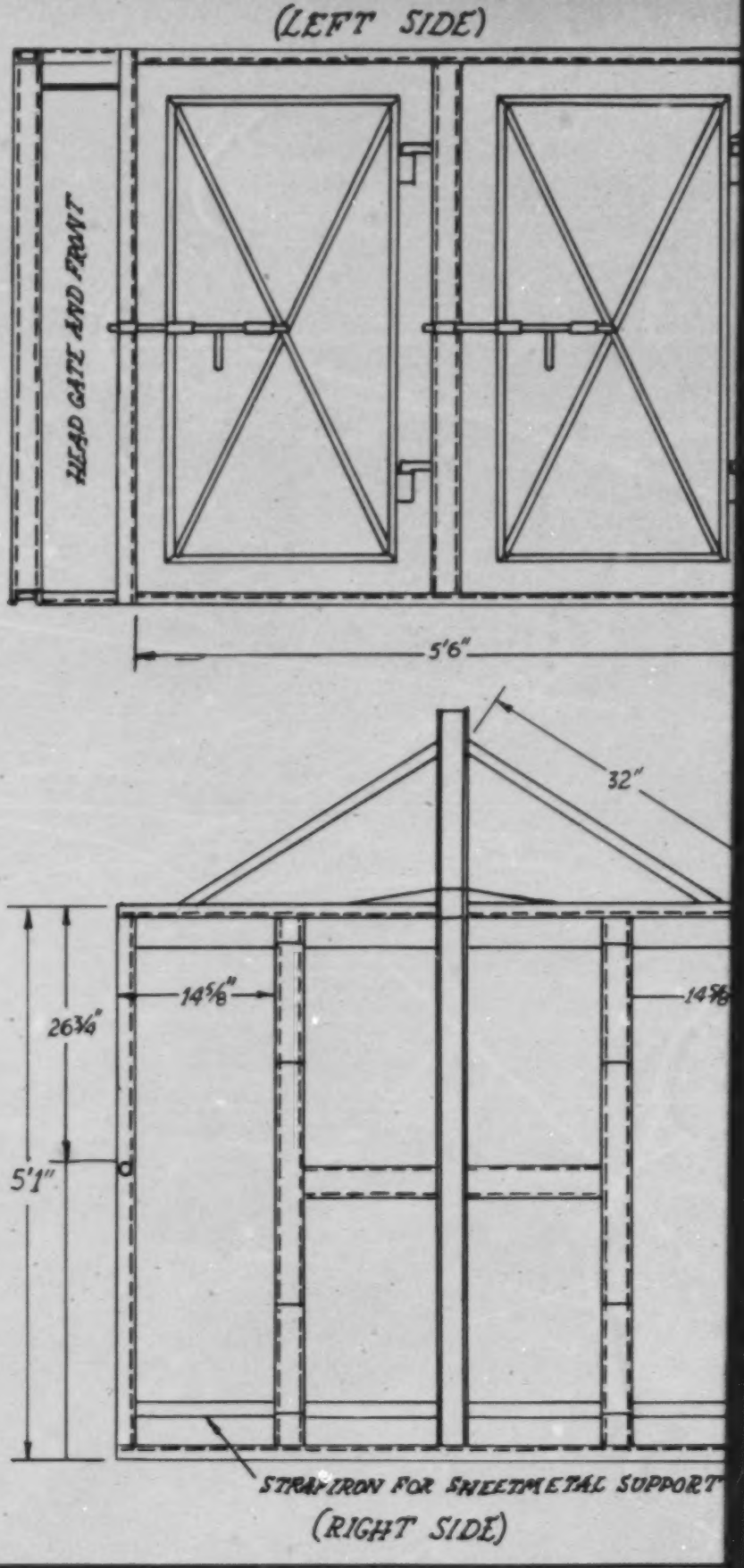
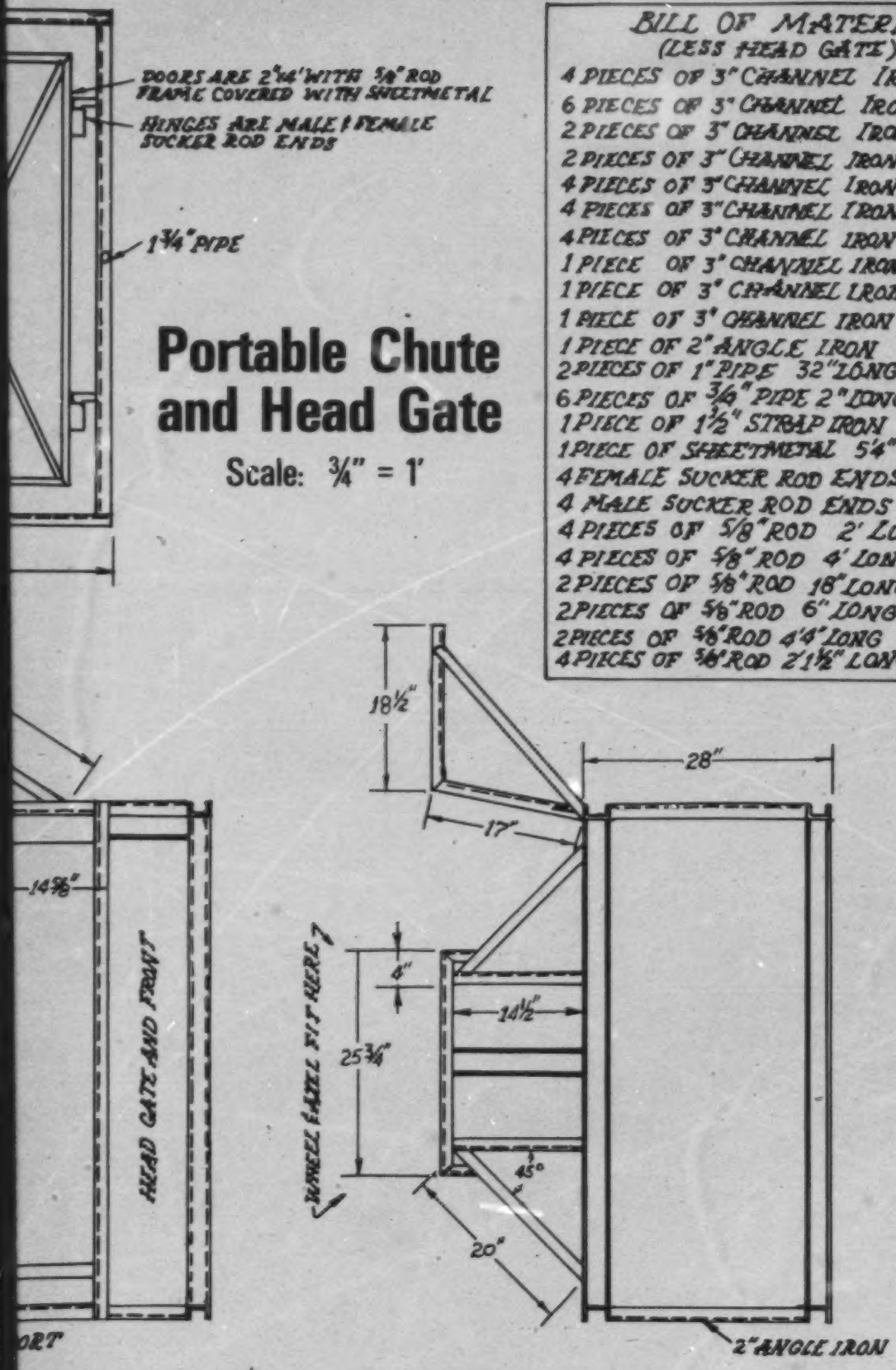
State Department of Vocational and Technical Education
Stillwater, Oklahoma

DRAWN BY: JOHN McEACHERN



Courtesy of Coalgate
Vocational Agriculture Department



Portable Chute and Head Gate

Scale: 3/4" = 1'

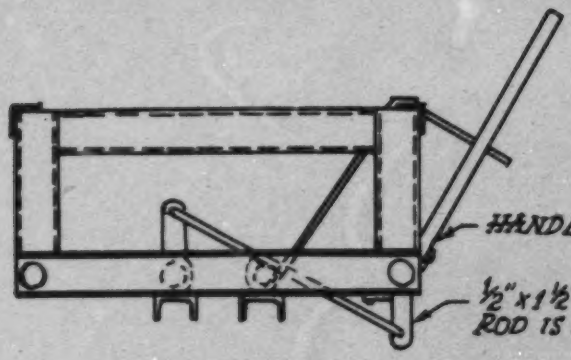
BILL OF MATERIAL
(LESS HEAD GATE)

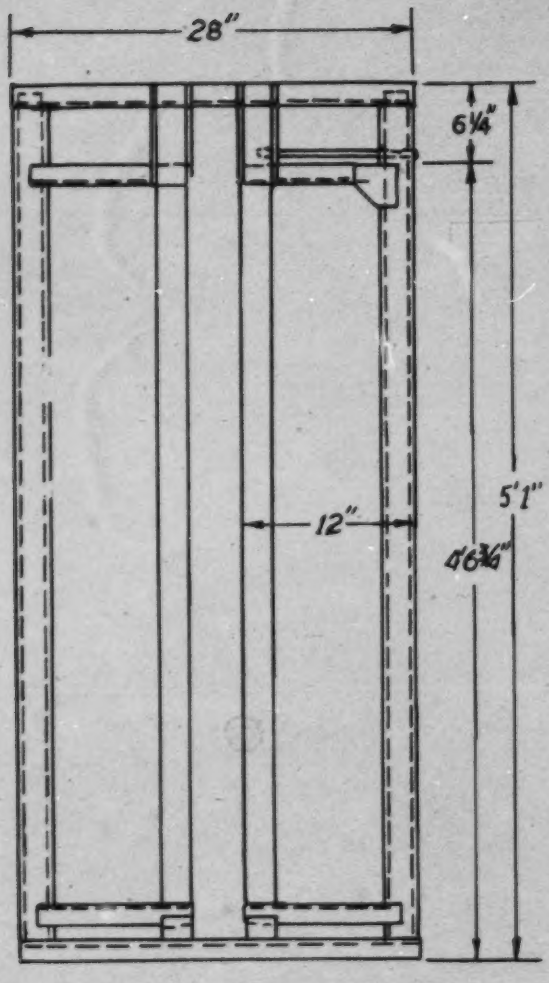
4 PIECES OF 3" CHANNEL IRON	5'6" LONG
6 PIECES OF 3" CHANNEL IRON	4'10" LONG
2 PIECES OF 3" CHANNEL IRON	25" LONG
2 PIECES OF 3" CHANNEL IRON	21" LONG
4 PIECES OF 3" CHANNEL IRON	20" LONG
4 PIECES OF 3" CHANNEL IRON	14 1/2" LONG
4 PIECES OF 3" CHANNEL IRON	4" LONG
1 PIECE OF 3" CHANNEL IRON	22" LONG
1 PIECE OF 3" CHANNEL IRON	18 1/2" LONG
1 PIECE OF 3" CHANNEL IRON	17" LONG
1 PIECE OF 2" ANGLE IRON	22" LONG
2 PIECES OF 1" PIPE	32" LONG
6 PIECES OF 3/4" PIPE	2" LONG
1 PIECE OF 1 1/2" STRAP IRON	5'4" LONG
1 PIECE OF SHEETMETAL	5'4" x 4'4"
4 FEMALE SUCKER ROD ENDS	
4 MALE SUCKER ROD ENDS	
4 PIECES OF 5/8" ROD	2' LONG
4 PIECES OF 5/8" ROD	4' LONG
2 PIECES OF 5/8" ROD	18" LONG
2 PIECES OF 5/8" ROD	6" LONG
2 PIECES OF 5/8" ROD	4'4" LONG
4 PIECES OF 5/8" ROD	2'1 1/2" LONG

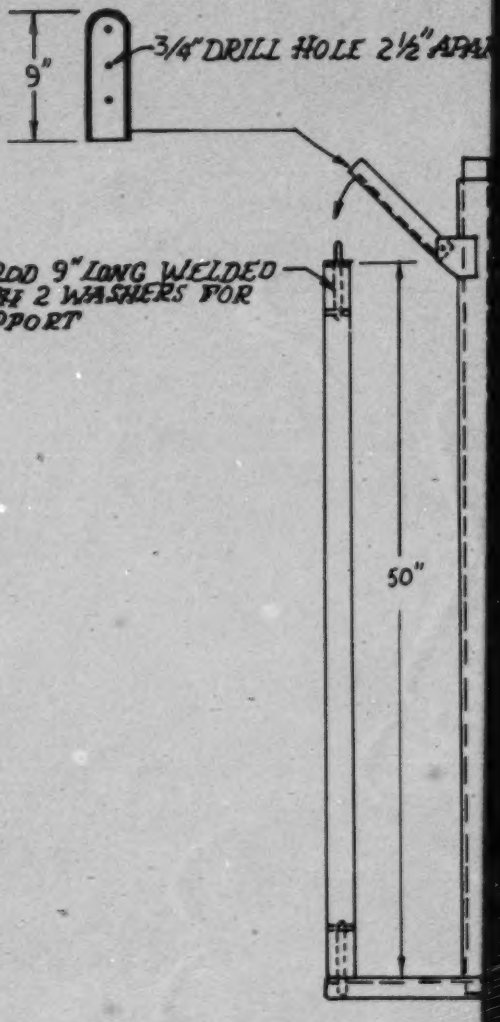
DWN BY: JOHN McEACHERN

Portable Chute and Head Gate

Scale: 1" = 1'







Courtesy of Coalgate
Vocational Agriculture Department

ble Chute
ead Gate

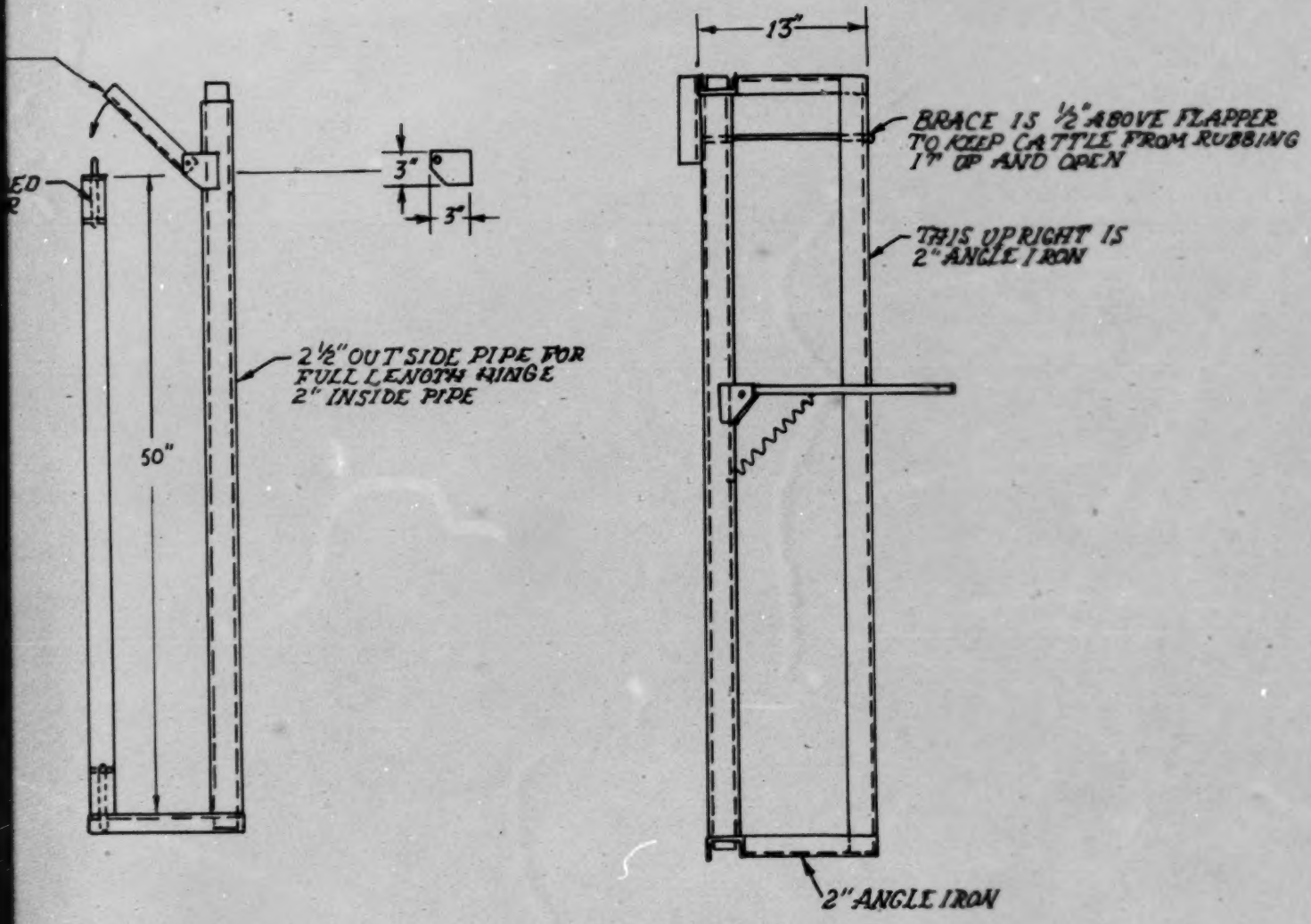
e: 1" = 1'

"LONG

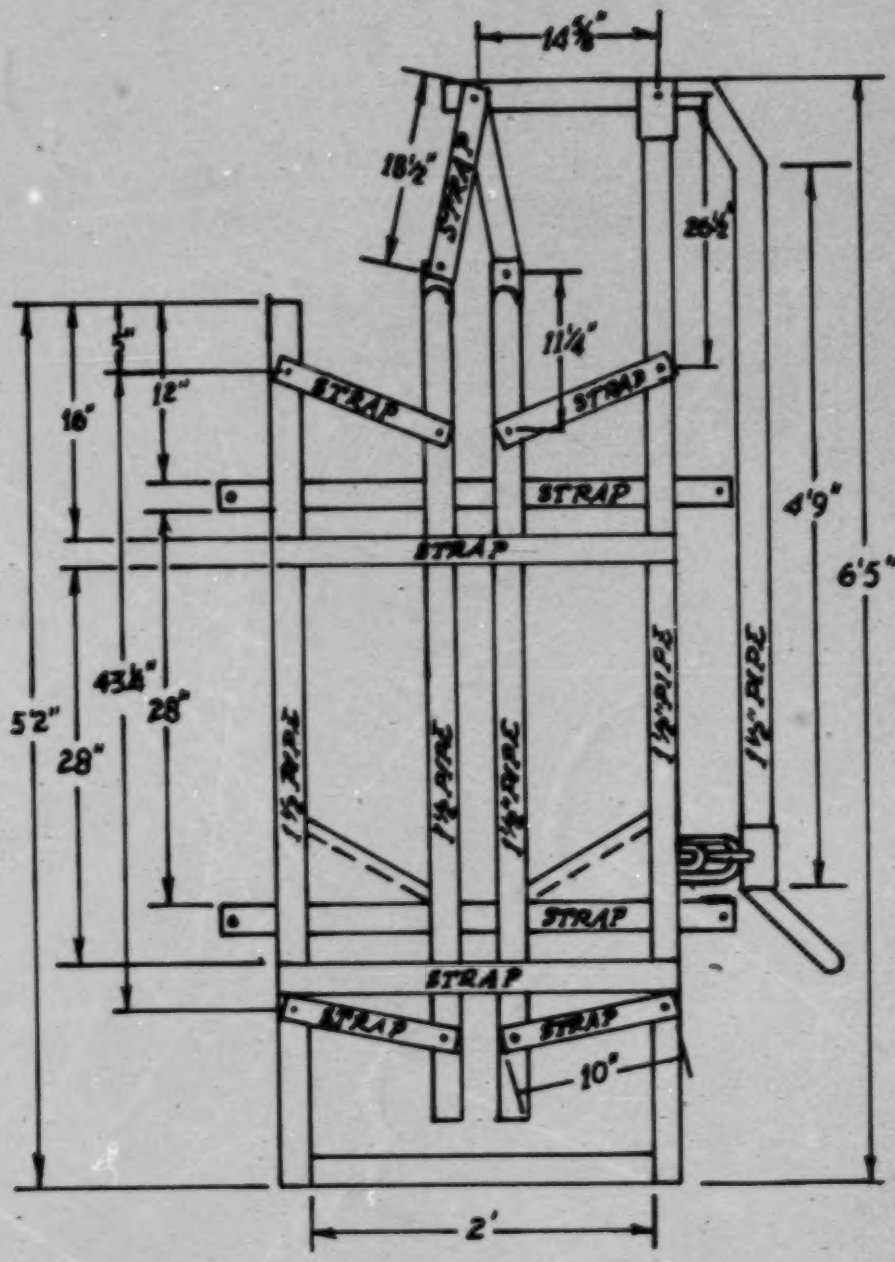
ILL HOLE 2½" APART

BILL OF MATERIAL

2 PIECES OF 2½" PIPE 4'10" LONG
2 PIECES OF 2" PIPE 4'11½" LONG
2 PIECES OF 2" PIPE 50" LONG
2 PIECES OF 2" ANGLE IRON 5'1" LONG
2 PIECES OF 2" ANGLE IRON 10" LONG
2 PIECES OF 3" CHANNEL IRON 28" LONG
1 PIECE OF 3" CHANNEL IRON 22" LONG
2 PIECES OF 3" CHANNEL IRON 10" LONG
2 PIECES OF 3" CHANNEL IRON 7" LONG
3 PIECES OF 3" CHANNEL IRON 11" LONG
2 PIECES OF 3" CHANNEL IRON 9" LONG
1 PIECE OF 1" SQ. TUBING 20" LONG FOR HANDLE
4 PIECES OF ¼" x 3" x 3" FLAT IRON
2 PIECES OF ½" x 1½" x 4" FLAT IRON
2 PIECES OF ¼" x 2 x 2" FLAT IRON
2 PIECES OF 5/8" ROD 18" LONG
2 PIECES OF 5/8" ROD 9" LONG


13"
BRACE IS ½" ABOVE FLAPPER TO KEEP CATTLE FROM RUBBING 1" UP AND OPEN
THIS UPRIGHT IS 2" ANGLE IRON
3"
3"
2½" OUTSIDE PIPE FOR FULL LENGTH HINGE
2" INSIDE PIPE
50"
2" ANGLE IRON

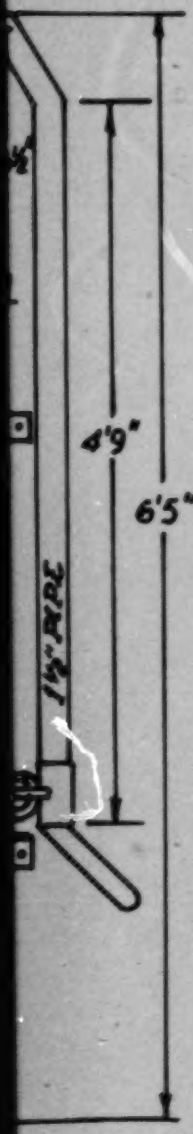
DWN BY: JOHN McEACHERN



Courtesy of Butner
Vocational Agriculture Department

Head Gate

Scale: 1" = 1'



BILL OF MATERIAL

4 PIECES OF 1½" STRAPIRON 12" LONG
2 PIECES OF 1½" STRAPIRON 20" LONG
2 PIECES OF 1½" STRAPIRON 3' LONG
4 PIECES OF 1½" STRAPIRON 2'3" LONG
1 PIECES OF 1½" STRAPIRON 2' LONG
4 PIECES OF 1¼" STRAPIRON 4" LONG
1 PIECE OF FLAT IRON 6"x9"
2 PIECES OF 1½" PIPE 4'10" LONG
1 PIECE OF 1½" PIPE 6'3" LONG
1 PIECE OF 1½" PIPE 7' LONG
1 PIECE OF 1¼" PIPE 4" LONG

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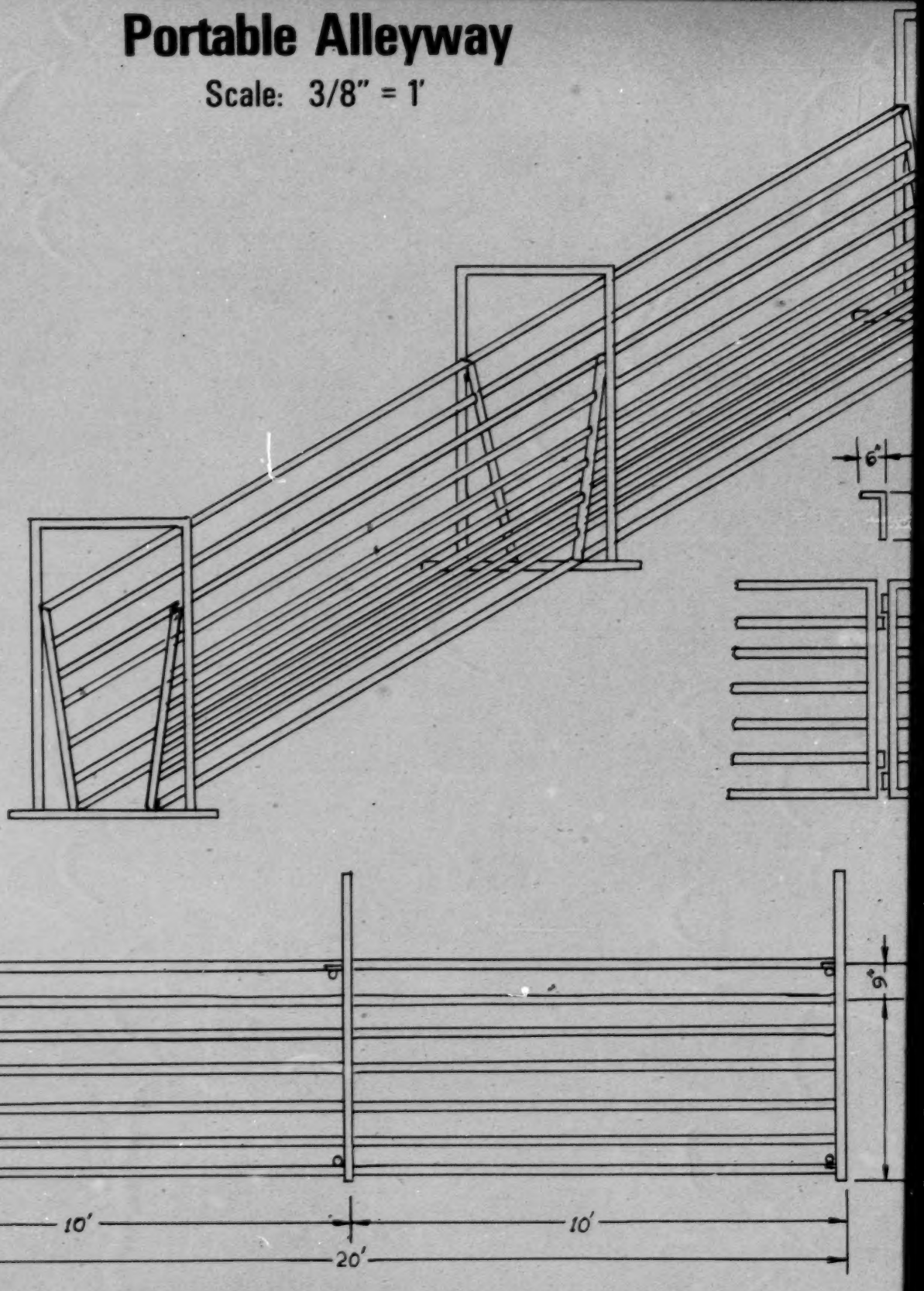
State Department of Vocational and Technical Education
Stillwater, Oklahoma

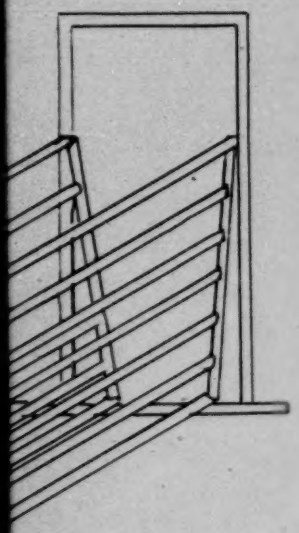
DWN BY: JOHN McEACHERN

Portable Alleyway

Scale: 3/8" = 1'

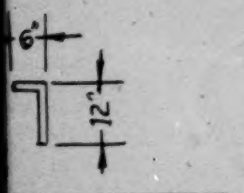


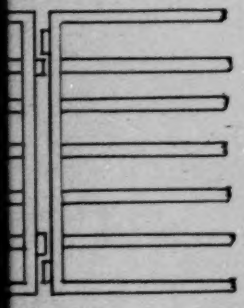
Courtesy of Jet-Nash
Vocational Agriculture Department

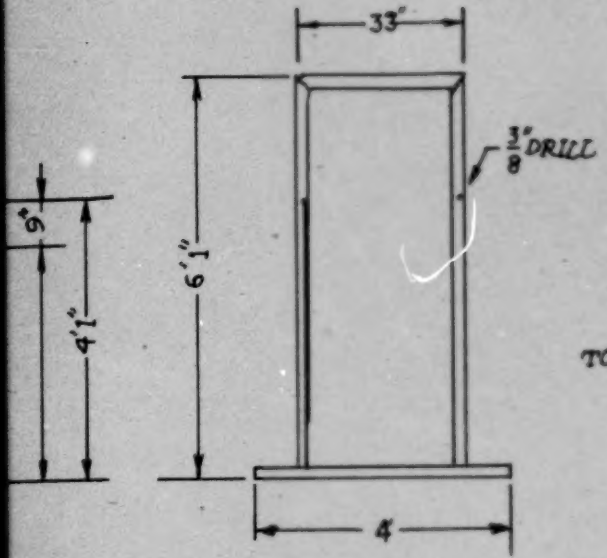


BILL OF MATERIAL

12 PIECES OF 1½" SQUARE TUBING 10' LONG
16 PIECES OF 1¼" SQUARE TUBING 10' LONG
6 PIECES OF 1½" SQUARE TUBING 4' LONG
6 PIECES OF 1½" SQUARE TUBING 6' LONG
3 PIECES OF 1½" SQUARE TUBING 4' LONG
3 PIECES OF 1½" SQUARE TUBING 33" LONG
6 PIECES OF 1½" PIPE 12" LONG WITH 11-⅜" DRILL HOLES
6 PIECE OF 1½" PIPE 8" LONG WITH 11-⅜" DRILL HOLES 1" APART
6-2" PIPE COLLARS 2" LONG WITH ⅜" DRILL HOLE
6-2" PIPE COLLARS 2" LONG WITH ½" PIPE 2" LONG WELDED AT RIGHT ANGLE WITH ⅜" DRILL HOLE
6-⅜" BOLTS 4½" LONG WITH NUTS
8 PIECES ¾" PIPE 3" LONG
4-½" PINS







1½" PIPE 12" LONG WITH 11-⅜" DRILL HOLES 1" APART
PIPE COLLAR 2" LONG WITH ⅜" DRILL HOLE

1½" PIPE 8" LONG WITH 7-⅜" DRILL HOLES 1" APART
2" PIPE COLLAR 2" LONG WITH ⅜" DRILL HOLE

½" PIPE 2" LONG WELDED AT A RIGHT ANGLE TO 2" PIPE COLLAR 2" LONG WITH ⅜" DRILL HOLE

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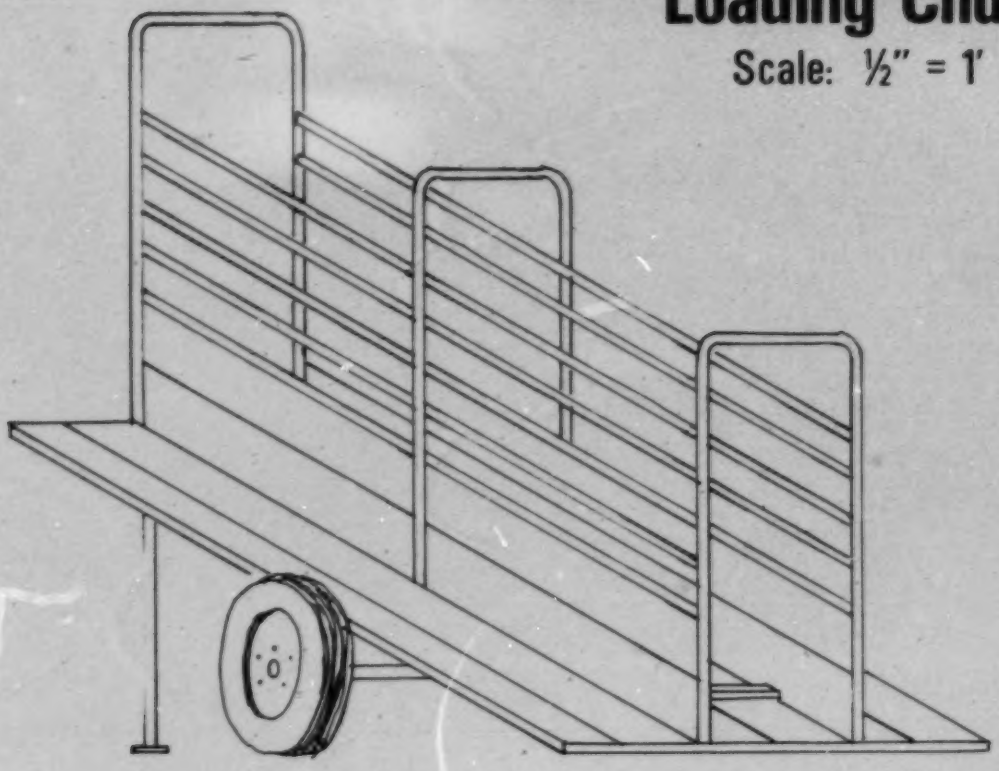
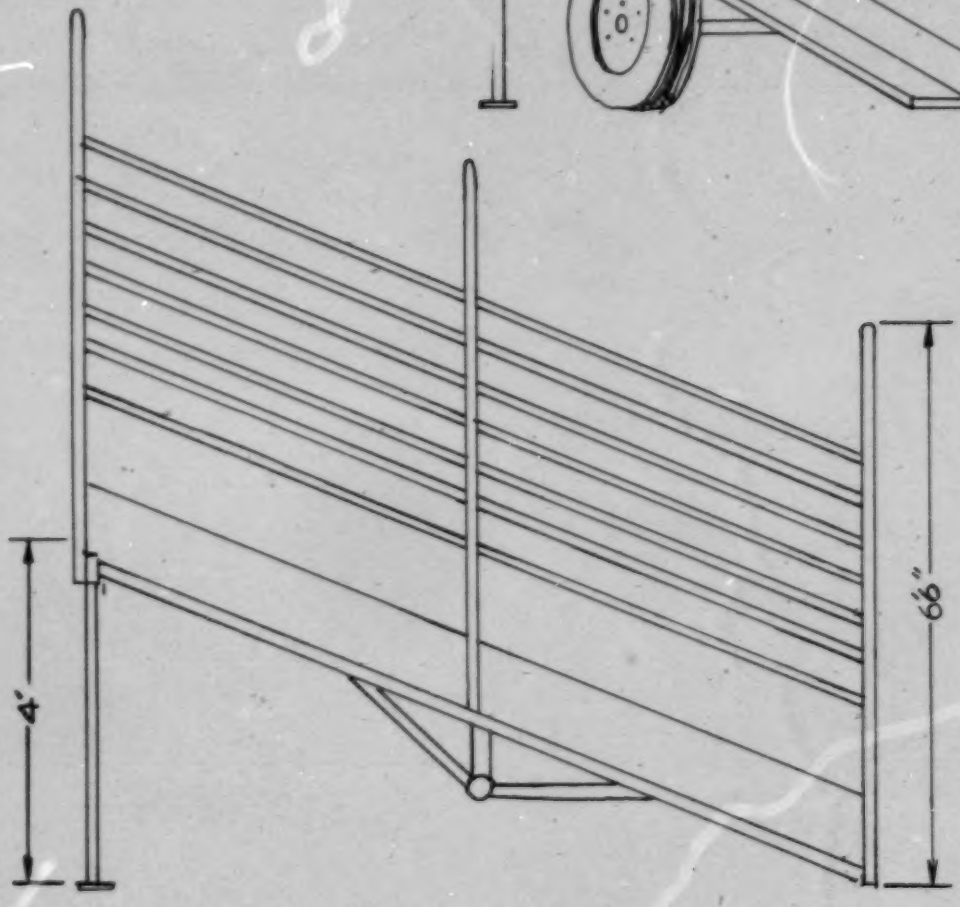
State Department of Vocational and Technical Education
Stillwater, Oklahoma

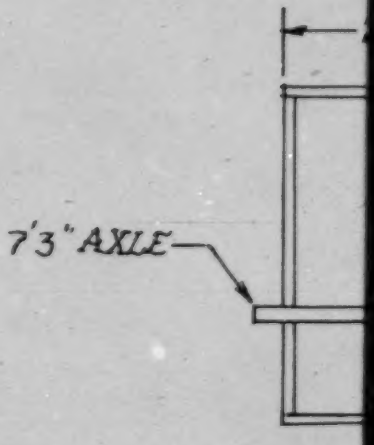
DWN BY: JOHN McEACHERN

Loading Chut

Scale: ½" = 1'







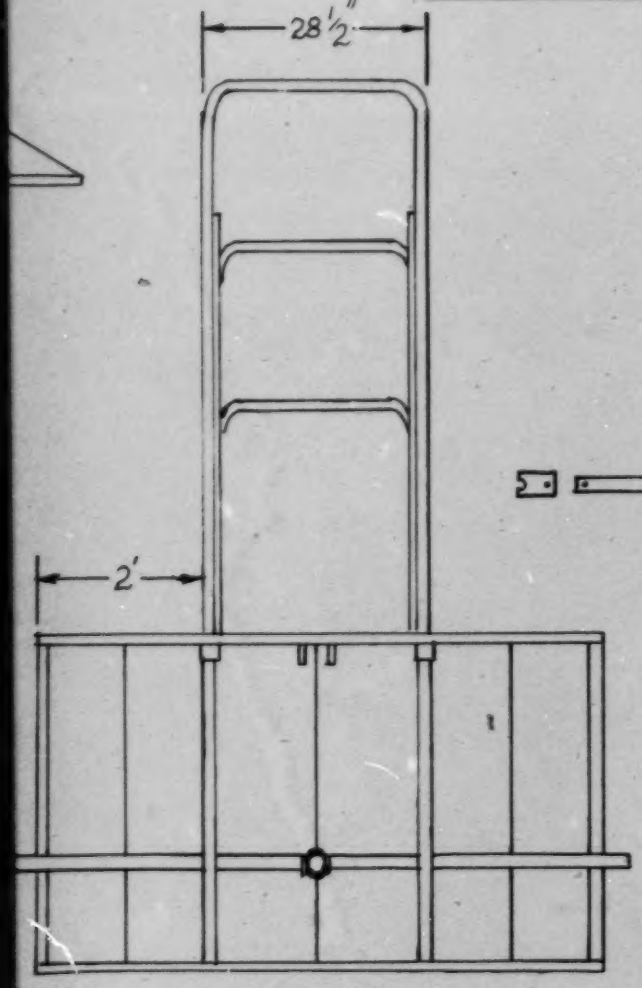
Courtesy of Jet-Nash
Vocational Agriculture Department

Chute

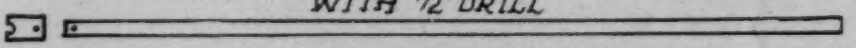
= 1'

BILL OF MATERIAL

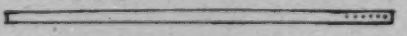
10 PIECES OF 1" SQUARE TUBING 10' LONG
6 PIECES OF 1¼" SQUARE TUBING 5' LONG
8 PIECES OF 1" SQUARE TUBING 26" LONG
1 PIECE OF 2½" PIPE 7' 3" LONG
5 PIECES OF 1¼" PIPE 4' LONG
2 PIECES OF 1½" PIPE 4" LONG
1 PIECE OF 2½" PIPE 9' LONG
4 PIECES OF 2"×1½" ANGLEIRON 10' LONG
2 PIECES OF 2"×1½" ANGLEIRON 6' 7" LONG
4 PIECES OF 2"×1½" ANGLEIRON 2' LONG
2 PIECES OF 2"×1½" ANGLEIRON 8" LONG
4 PIECES OF FLATIRON 4"×3"×½"
4 PIECES OF FLATIRON 4"×4"×½"
4 BOARDS 2"×10" – 10' LONG
24 - ¼" CARRIAGE BOLTS 2½" LONG
2 - ¼" MACHINE BOLTS 2½" LONG
1 - ½" MACHINE BOLTS 3½" LONG



HITCH IS 2½" PIPE 9' LONG
WITH ½" DRILL



ADJUSTABLE STANDS OF 1¼" PIPE 4' LONG
WITH 6-½" HOLES 1" APART



STAND HOLDER IS 1½" PIPE 4" LONG

4" × ½" × 3" WITH ½" DRILL

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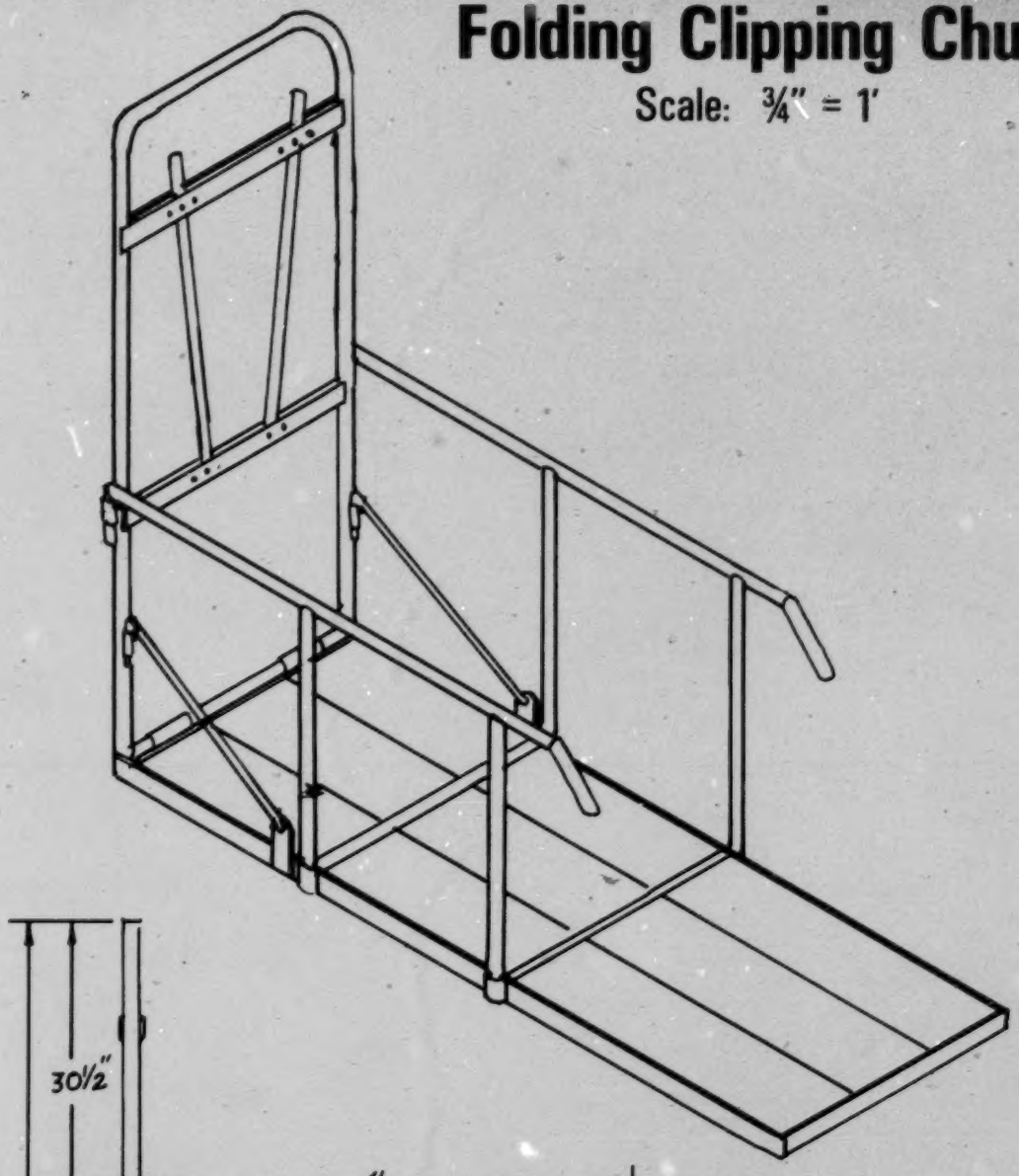
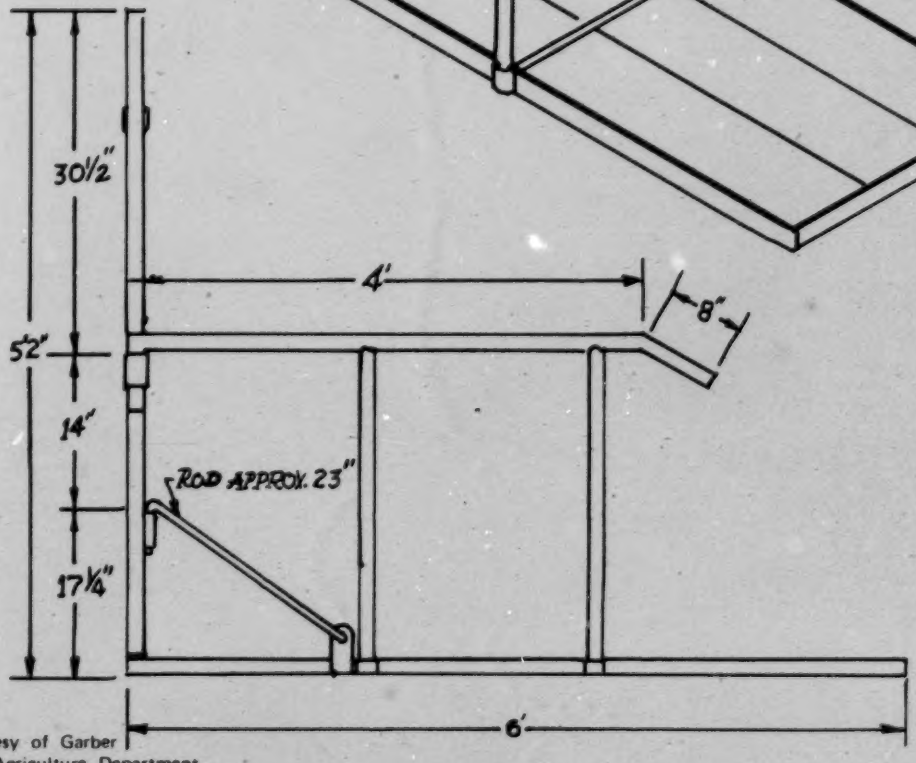
State Department of Vocational and Technical Education
Stillwater, Oklahoma

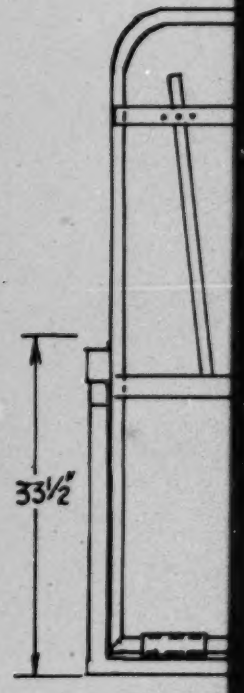
DWN BY: JOHN McEACHERN

Folding Clipping Chute

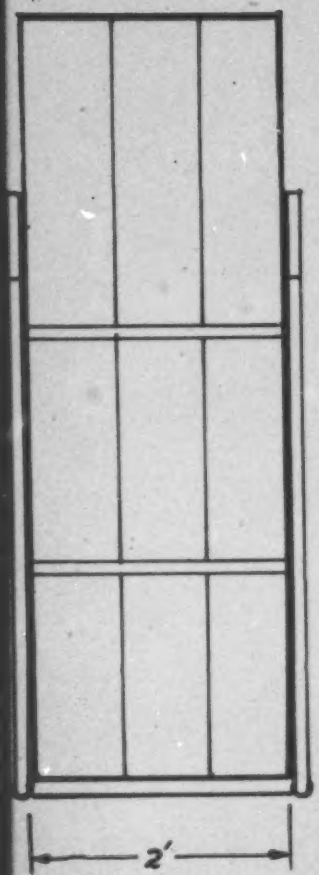
Scale: ¾" = 1'





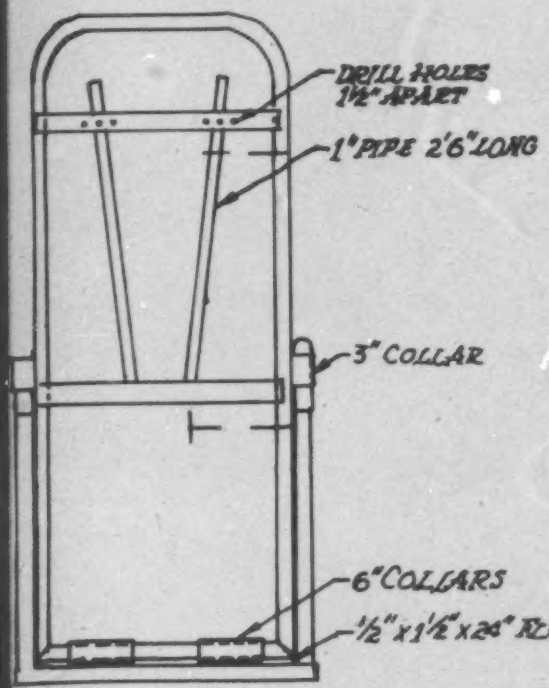


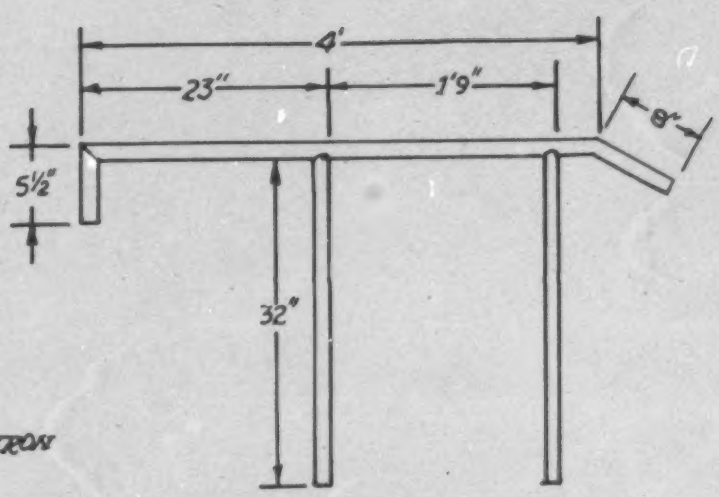
Courtesy of Garber
Vocational Agriculture Department



BILL OF MATERIAL

2 PIECES OF 2" ANGLE IRON 6' LONG
2 PIECES OF 2" ANGLE IRON 2' LONG
1 PIECE OF ½" X 1½" X 24" FLAT IRON
2 PIECES OF ¼" X 1" X 24" FLAT IRON
4 PIECES OF ¼" X 2" X 23" FLAT IRON
2 PIECES OF ½" X 2" X 4' FLAT IRON
2 PIECES OF 1½" PIPE 5' 2" LONG
2 PIECES OF 1½" PIPE 2" LONG
2 PIECES OF 1½" PIPE 8" LONG
4 PIECES OF 1½" PIPE 32" LONG
2 PIECES OF 1½" PIPE 4' LONG
2 PIECES OF 1½" PIPE 5½" LONG
2 PIECES OF 5/8" ROD APPROX. 25" LONG
2 PIECES OF ¾" PIPE 3" LONG
2 PIECES OF 1¾" PIPE 6" LONG
2 PIECES OF 1¾" PIPE 3" LONG
4 PIECES OF 1¾" PIPE 2" LONG
2 PIECES OF 1" PIPE 30" LONG





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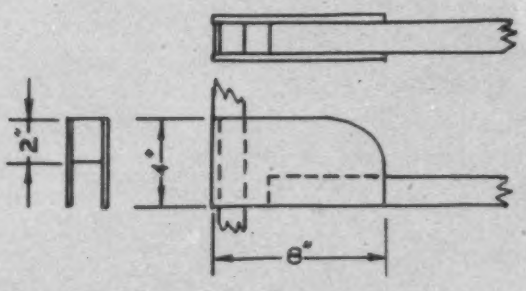
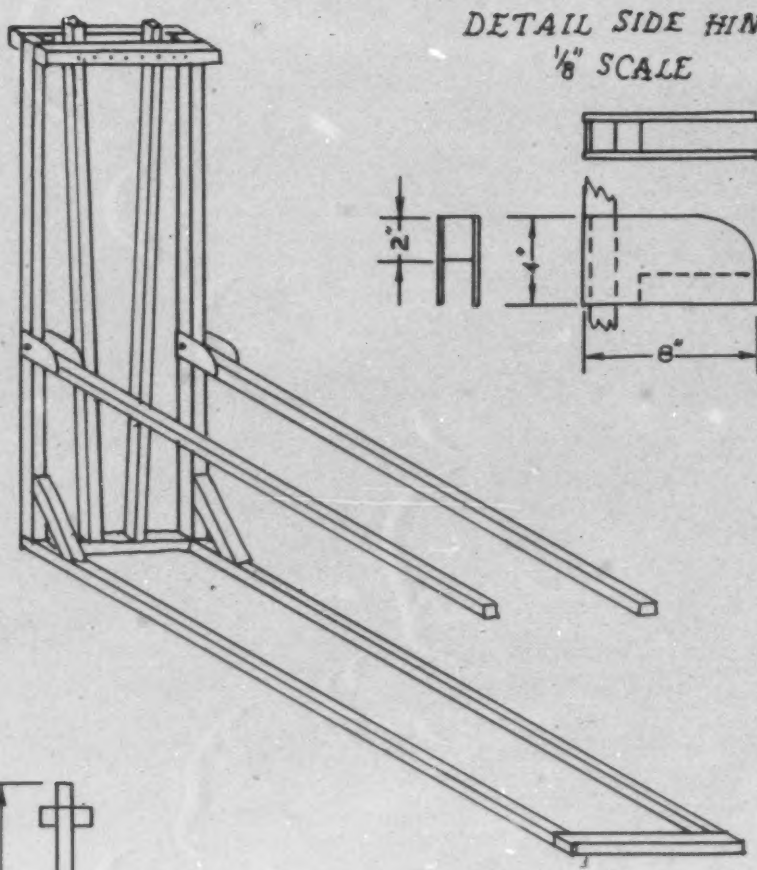
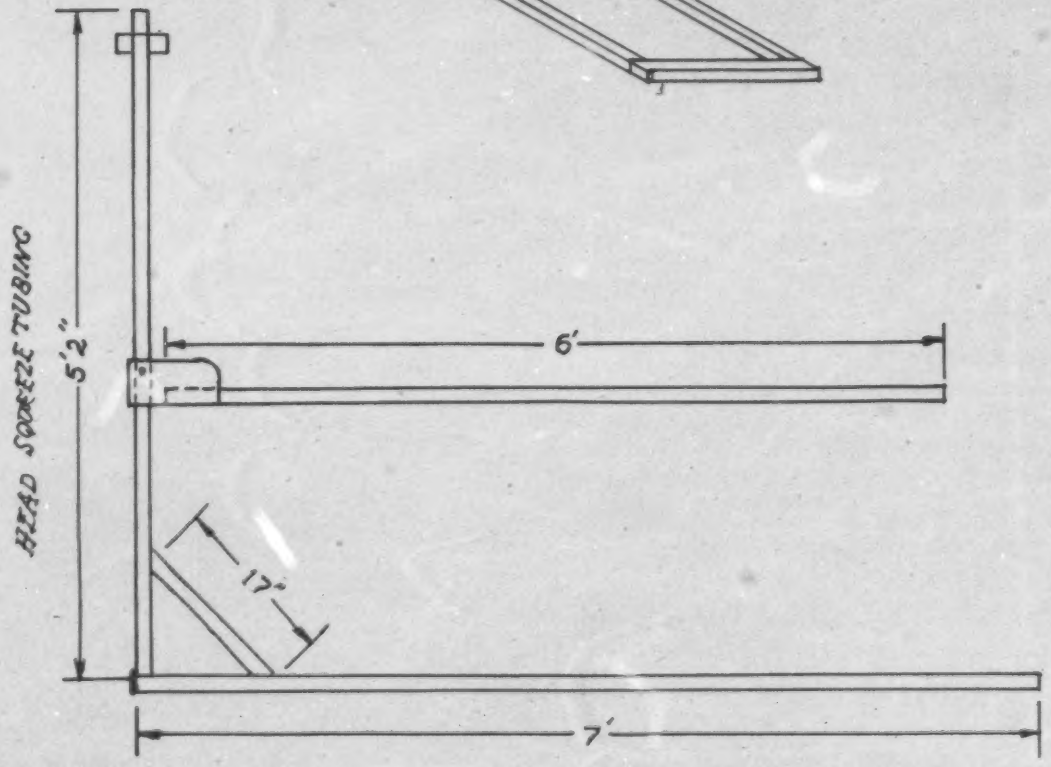
Stillwater, Oklahoma

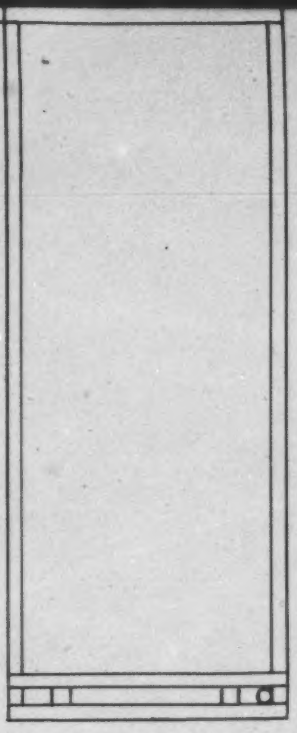
DETAIL SIDE HINGE
1/8" SCALE







Courtesy of Jet-Nash
Vocational Agriculture Department

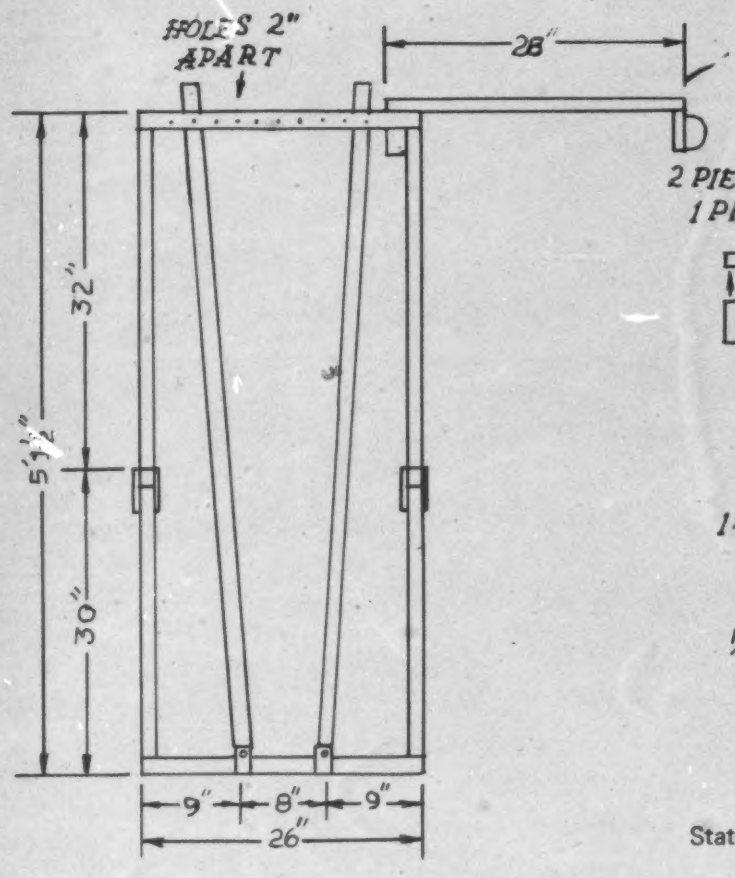


BILL OF MATERIAL

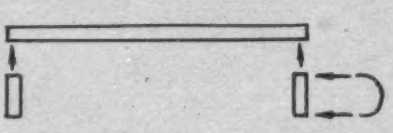
2 PIECES OF 1½" SQUARE TUBING 7' LONG
2 PIECES OF 1½" SQUARE TUBING 5' LONG
3 PIECES OF 1½" SQUARE TUBING 26" LONG
1 PIECE OF 1½" SQUARE TUBING 23" LONG
2 PIECES OF 1½" SQUARE TUBING 17" LONG
2 PIECES OF 1½" SQUARE TUBING 6' LONG
2 PIECES OF 1½" SQUARE TUBING 5'2" LONG
1 PIECE OF 1" PIPE 28" LONG
1 PIECE OF 1¼" PIPE 4" LONG
2 PIECES OF 1" PIPE 4" LONG
4 PIECES OF FLAT IRON 4" x 8" x 3/16"
4 PIECES OF FLAT IRON 1½" x 2½" x 3/16"
2 PIECES OF 1½" x 3/16" ANGLE IRON 23" LONG
1 PIECE OF ¼" CHAIN 19" LONG WITH 2 SNAPS
12 ¼" x 2" CARRIAGE BOLTS WITH NUTS & WASHERS
2 ½" x 2½" MACHINE BOLTS WITH NUTS & WASHERS
2 2" x 12" BOARDS 8' LONG

Clipping Chute

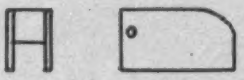
Scale: ¾" = 1'



2 PIECES OF 1" PIPE WELDED TO 1 PIECE OF 1" PIPE 26" LONG



SIDE HINGE



1½" x 2½" FLATIRON WITH 5/16" DRILL

½" CURVED ROD FOR CHAIN SNAP

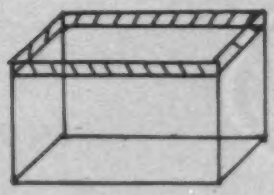
Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

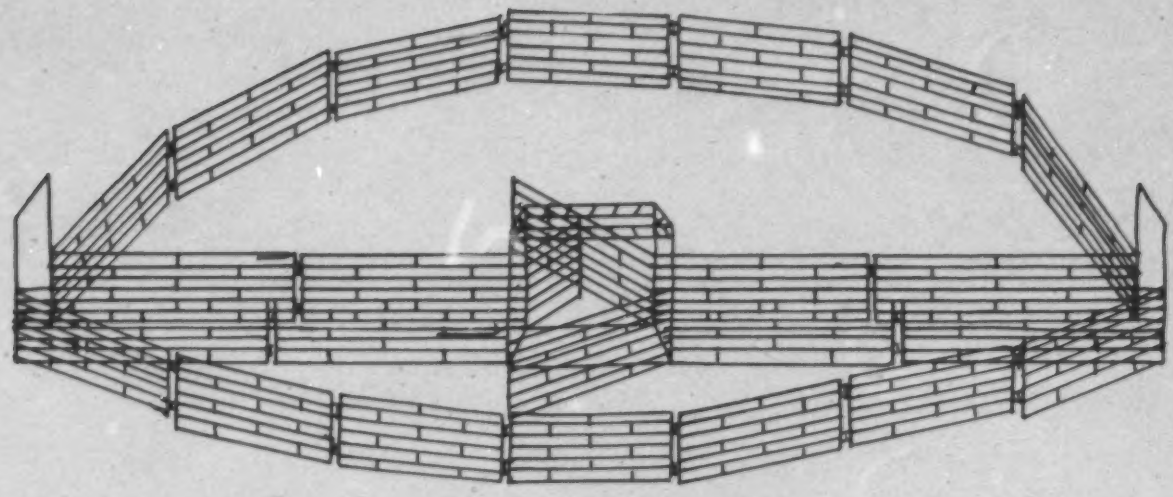
DWN BY: JOHN McEACHERN

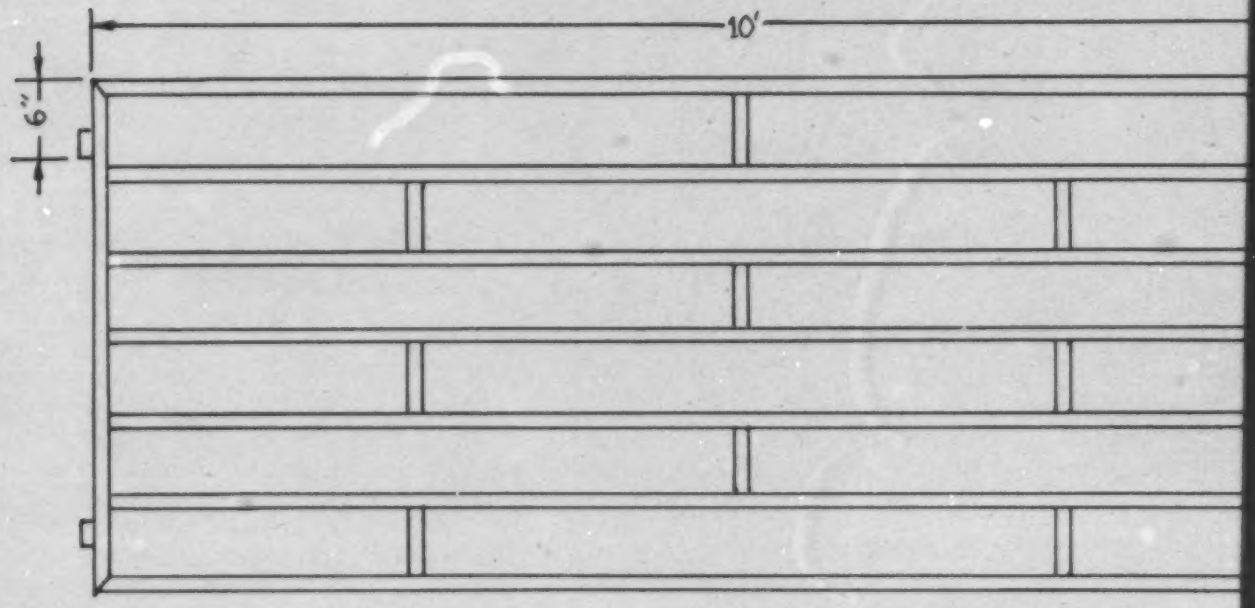
SOLID WELDED FRAMEWORK
10' WIDE 6½' TALL 4' WIDE

Portable Corral

Scale: ¾" = 1'







Courtesy of Jet-Nash
Vocational Agriculture Department

24 PANELS
- 2 PIECES OF 1½" SQUARE TUBING 10' LONG
- 2 PIECES OF 1½" SQUARE TUBING 4' LONG
- 5 PIECES OF 1¼" SQUARE TUBING 9'9" LONG
- 9 PIECES OF 1¼" SQUARE TUBING 6½" LONG

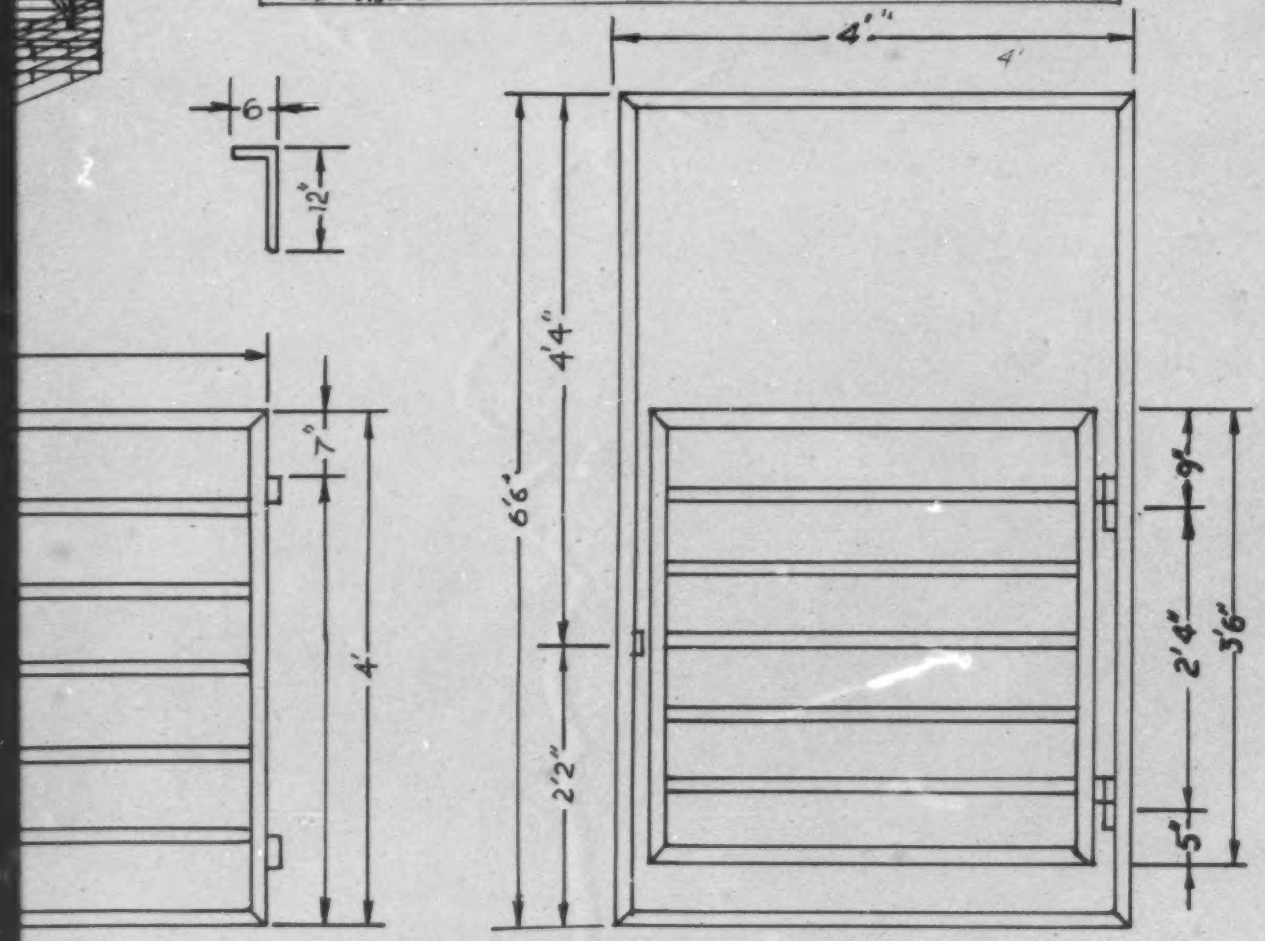
GATE END BRACKET
- 2 PIECES OF 1½" SQUARE TUBING 6'6" LONG
- 2 PIECES OF 1½" SQUARE TUBING 4' LONG

3 GATE END PANELS
- 2 PIECES OF 1½" SQUARE TUBING 3'6" LONG
- 2 PIECES OF 1½" SQUARE TUBING 3'5" LONG
- 5 PIECES OF 1¼" SQUARE TUBING 3'2" LONG

CENTER FRAMEWORK
- 4 PIECES OF 1½" SQUARE TUBING 10'4" LONG
- 4 PIECES OF 1½" SQUARE TUBING 6'6" LONG
- 4 PIECES OF 1½" SQUARE TUBING 4'4" LONG
- 2 PIECES OF 1½" SQUARE TUBING 10'1" LONG
- 2 PIECES OF 1½" SQUARE TUBING 4'1" LONG
- 24 PIECES OF 1¼" SQUARE TUBING 14" LONG

126 PIECES OF ¾" PIPE 3" LONG

56 PINS OF ½" PIPE 18" LONG



Curriculum and Instructional Materials Center

State Department of Vocational and Technical Education

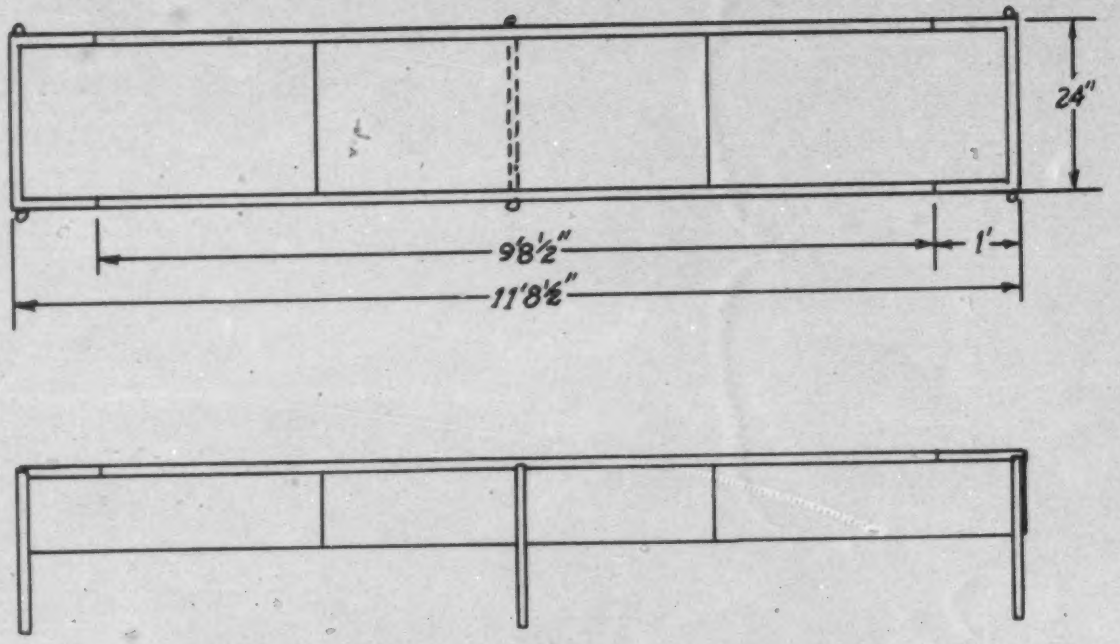
Stillwater, Oklahoma

DW BY: J McEACHERN

Barrel Feed

Scale: ½" = 1

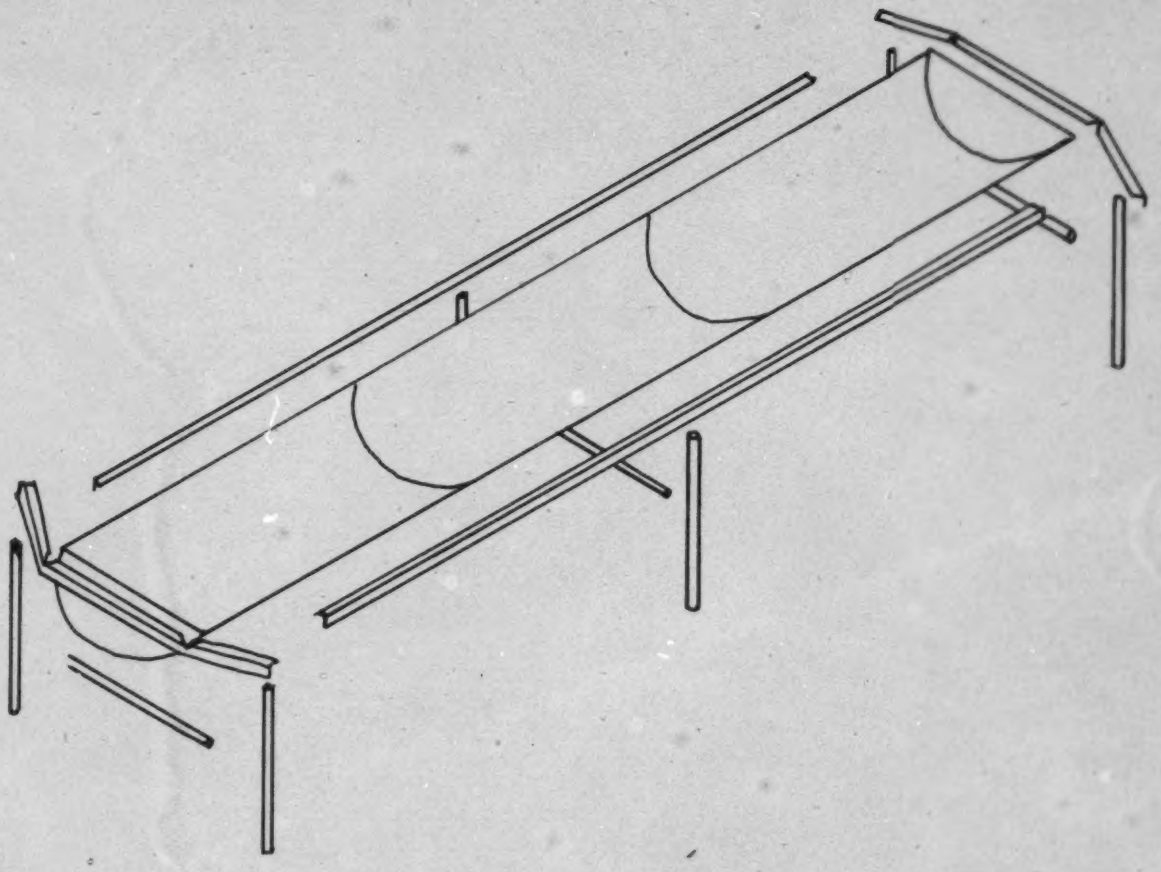
BILL OF MATERIAL
2 PIECES OF 1½" ANGLE IRON 9'8½" LONG
2 PIECES OF 1½" ANGLE IRON 4' LONG
9 PIECES OF 1½ PIPE 24" LONG
3 - 55 GAL BARREL HALVES

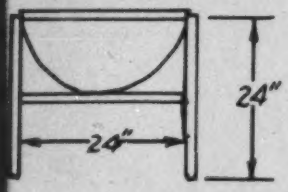


Courtesy of Jet-Nash
Vocational Agriculture Department

Feeder

½" = 1'





Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

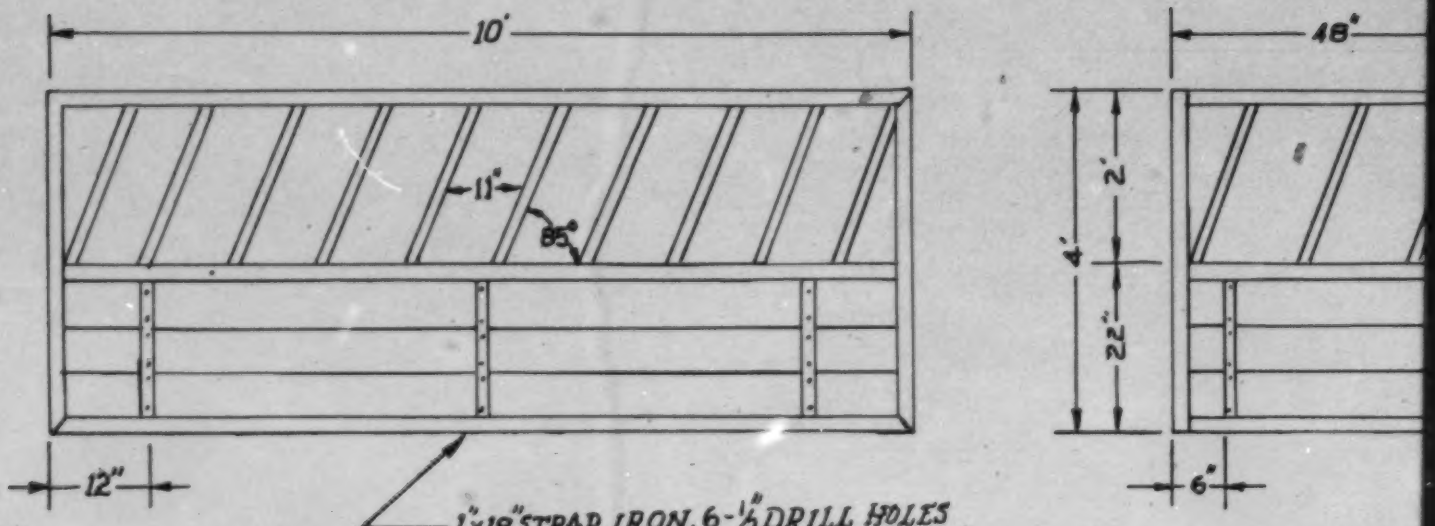
DWN BY: JOHN MCEACHERN

Hay Feede

Scale: ½" = 1'

BILL OF MATERIAL

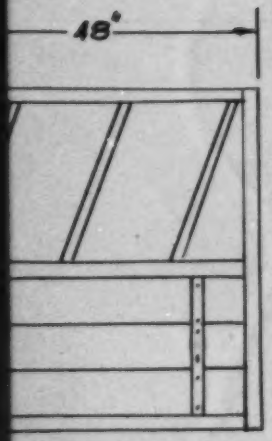
4	PIECES OF 2" PIPE	10"
2	PIECES OF 2" PIPE	9'8"
4	PIECES OF 2" PIPE	4'
4	PIECES OF 2" PIPE	3'8"
2	PIECES OF 2" PIPE	40"
26	PIECES OF 1" PIPE	2"
10	PIECES OF STRAP IRON	18"
6	1"x6" BOARDS	9'8"
6	1"x6" BOARDS	40"
60	BOLTS ½" x 1½" LONG	

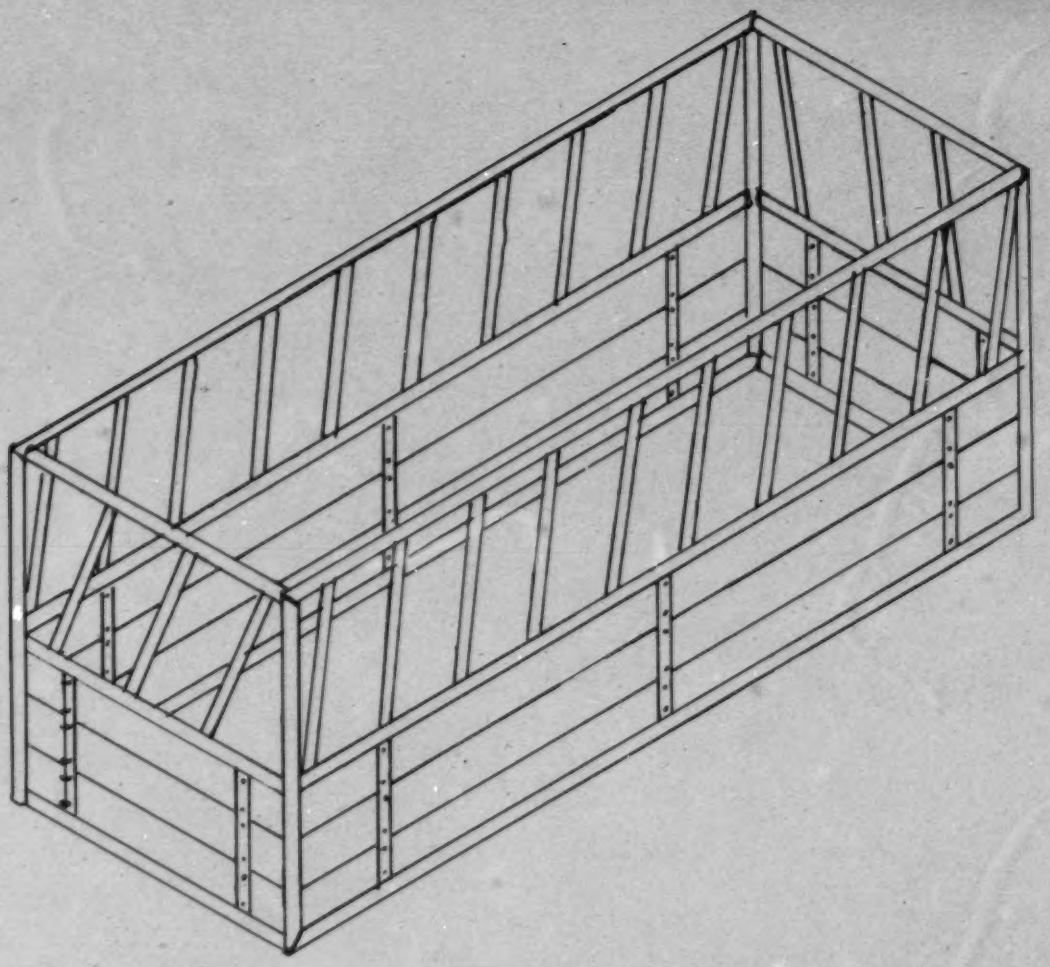


Courtesy of Jet-Nash
Vocational Agriculture Department

Feeder

e: ½" = 1'



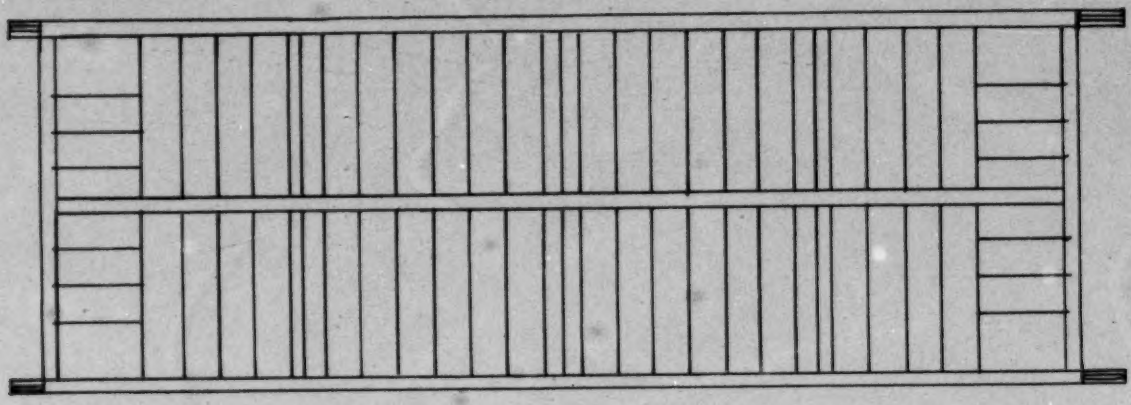


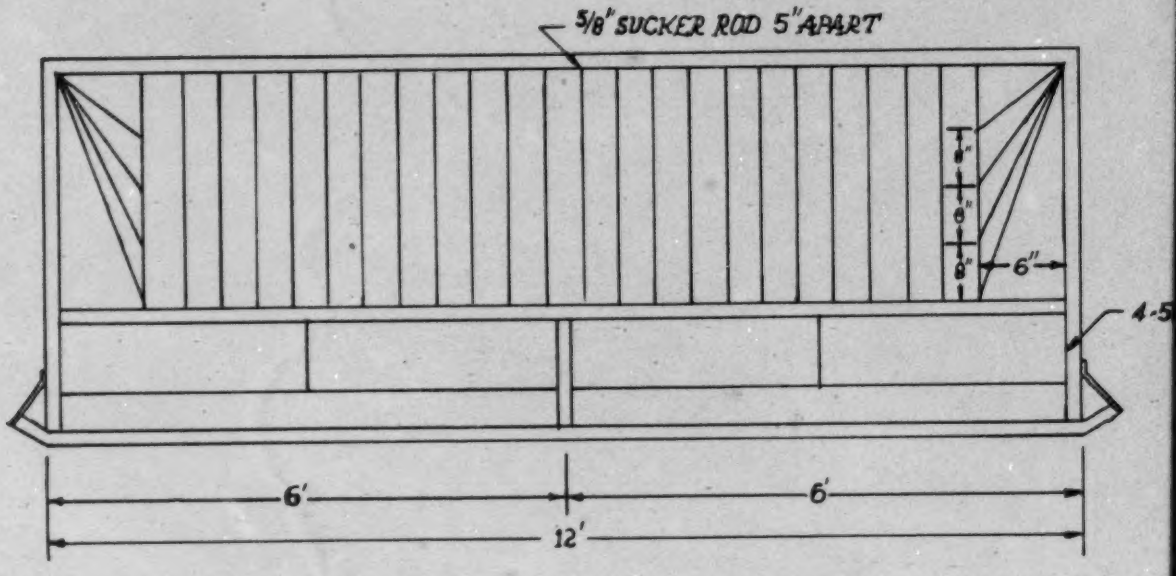
Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

DWN BY: JOHN McEACHERN

Hay Feeder

Scale: ½" = 1'





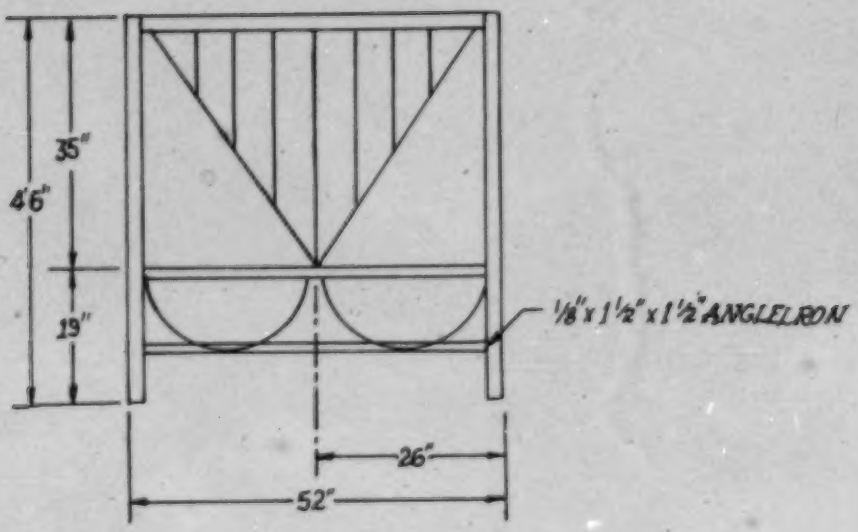
Courtesy of Okarche
Vocational Agriculture Department

eder

" = 1'

BILL OF MATERIAL

2 PIECES OF 2" PIPE 13' LONG
3 PIECES OF 2" PIPE 12' LONG
2 PIECES OF 2" PIPE 11'8" LONG
3 PIECES OF 2" PIPE 4' LONG
2 PIECES OF 2" PIPE 15" LONG
4 PIECES OF 1½" ANGLEIRON 4' LONG
48 PIECES OF 5/8" ROD 3'6" LONG
4 PIECES OF 5/8" ROD 9" LONG
2 PIECES OF 5/8" ROD 2'10" LONG
4 PIECES OF 5/8" ROD 2'1" LONG
4 PIECES OF 5/8" ROD 1'5" LONG
4 PIECES OF 5/8" ROD 10" LONG
4-55 GALLON DRUMS



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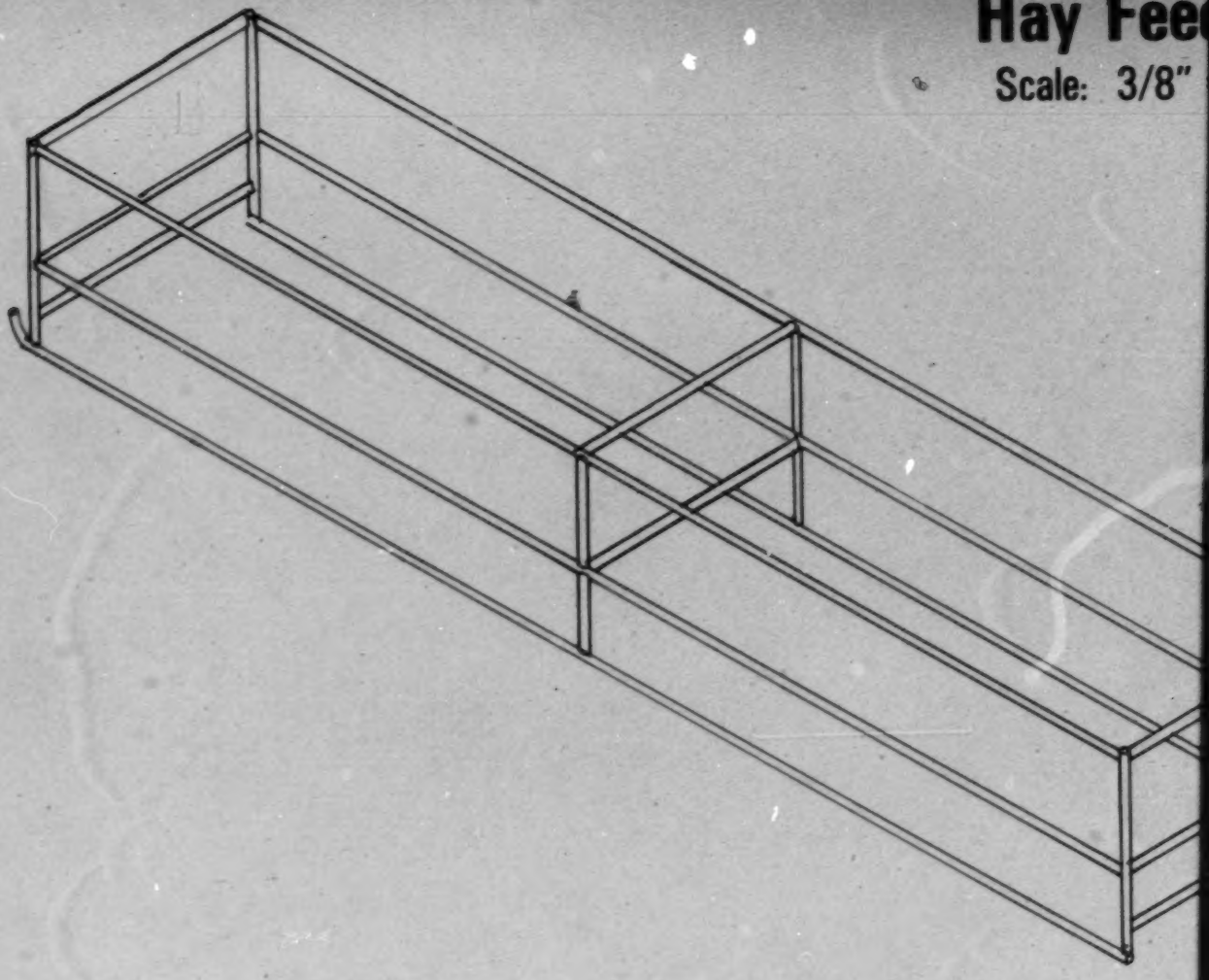
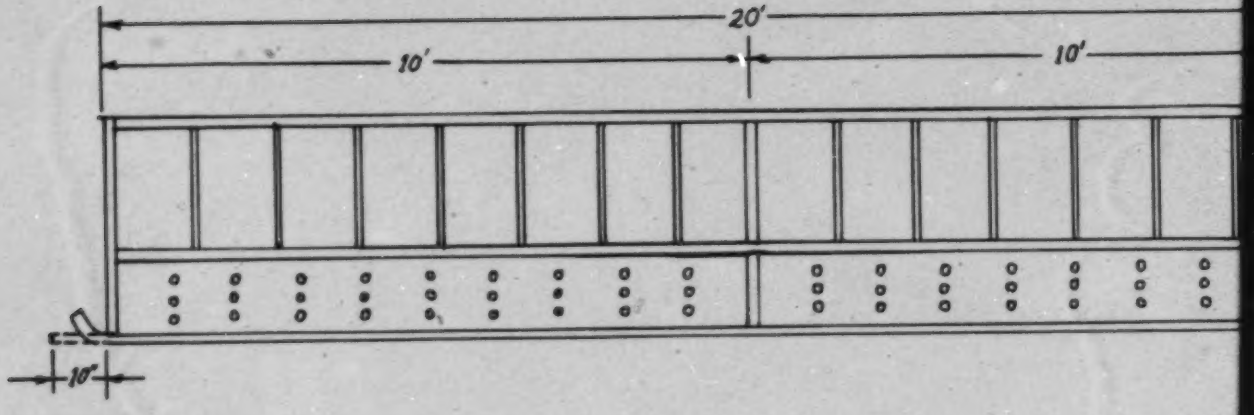
Stillwater, Oklahoma

DWN BY: JOHN McEACHERN

Hay Fee

Scale: 3/8"





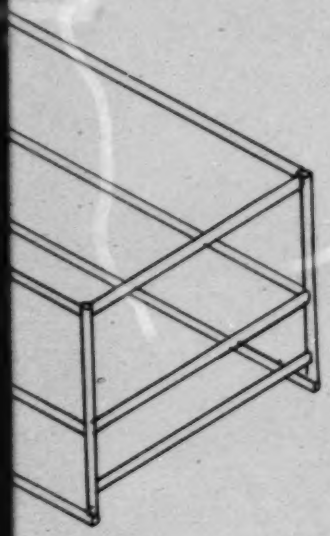
Courtesy of Kingfisher
Vocational Agriculture Department

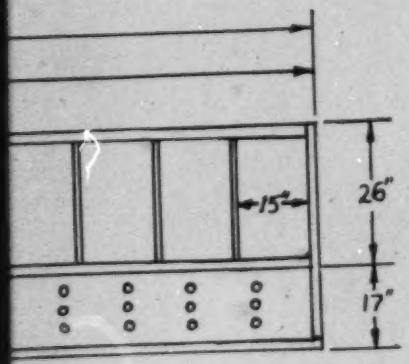
y Feeder

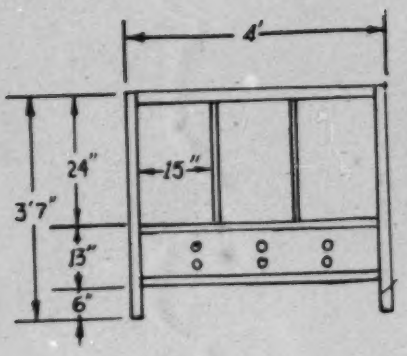
e: 3/8" = 1'

BILL OF MATERIAL

4 PIECES OF 2" PIPE 19'8" LONG
2 PIECES OF 2" PIPE 20'10" LONG
4 PIECES OF 2" PIPE 3'5" LONG
2 PIECES OF 2" PIPE 22¼" LONG
2 PIECES OF 2" PIPE 15¼" LONG
8 PIECES OF 2" PIPE 3'8" LONG
4 LANDING MATS 10' x 16"
2 LANDING MATS 3'8" x 10"
32 PIECES OF 5/8" OR 3/4" SUCKER ROD 22" LONG







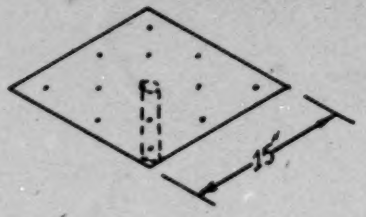
Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

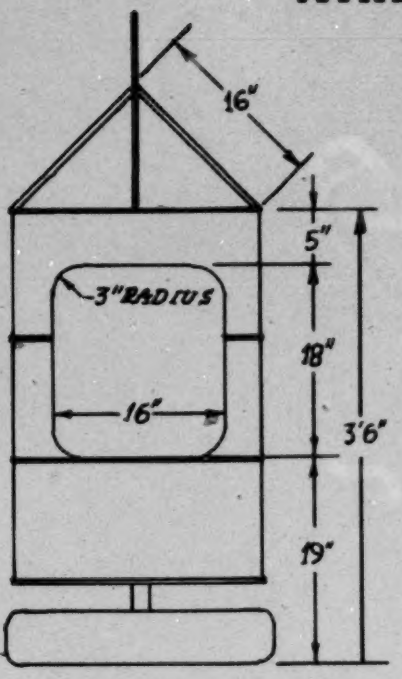
DWN BY: JOHN McEACHERN

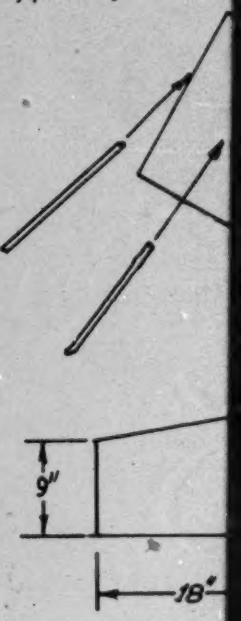
Mineral Feeders

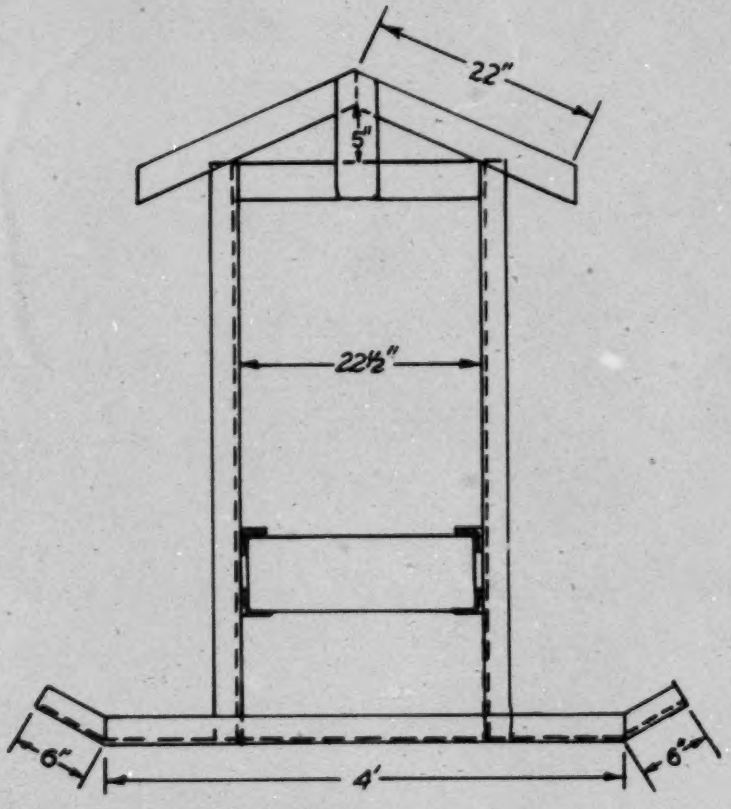
Scale: ¾" = 1'

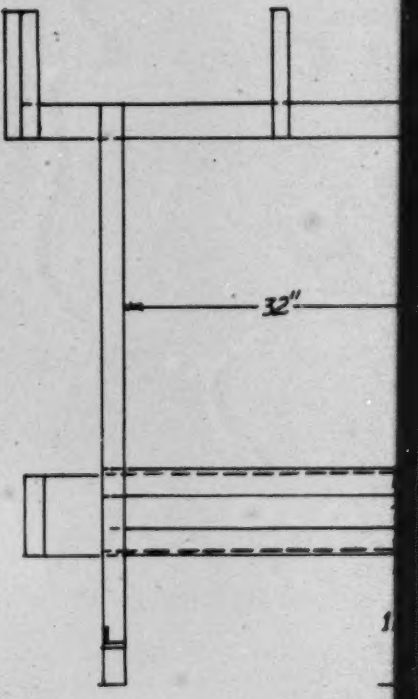
¼" x 15" x 15" FLAT METAL BOLTED TO BARREL WITH 1¼" PIPE WELDED TO FLAT METAL TO FIT OVER 1½" ROD FOR SWIVEL







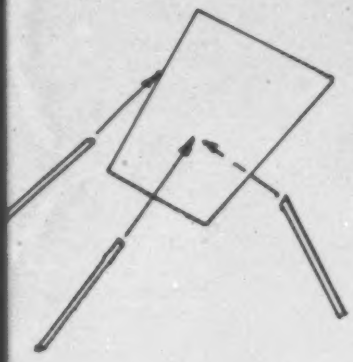


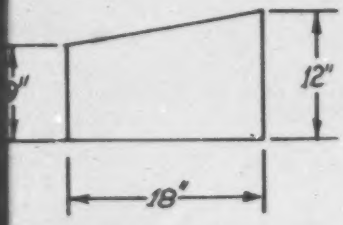


Courtesy of Coalgate
ational Agriculture Department

eeders

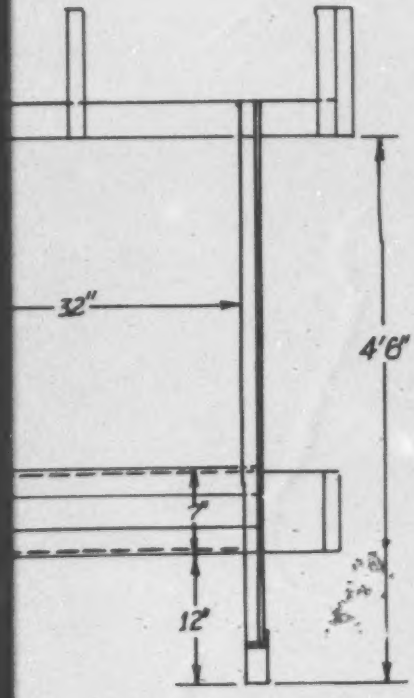
" = 1'





BILL OF MATERIAL

1-55 GAL BARREL
1 PIECE OF 1½" ROD APPROX. 5" LONG
1 PIECE OF 1¾" PIPE APPROX 4" LONG
1 WHEEL & TIRE CEMENTED
1 PIECE OF SHEETMETAL 18"x12"
3 WEATHER VAIN BRACES 16" LONG
1 PIECE OF ¼"x15"x45" FLATMETAL



BILL OF MATERIAL

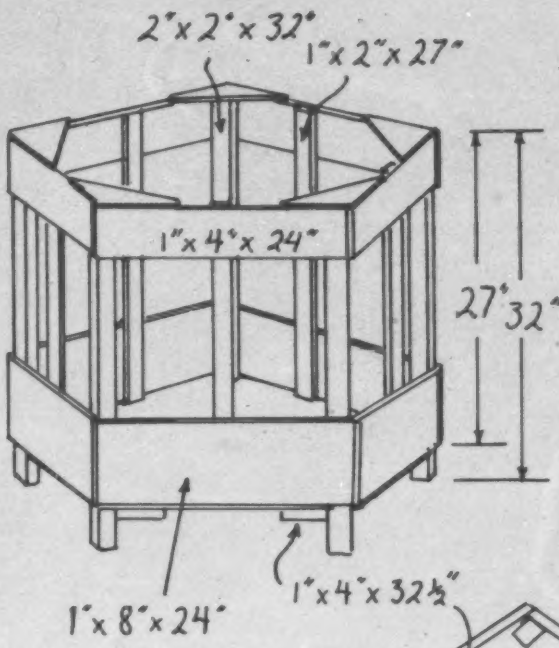
2 PIECES OF 2½" ANGLEIRON 5' LONG
4 PIECES OF 2½" ANGLEIRON 4'6" LONG
4 PIECES OF 2½" ANGLEIRON 32" LONG
4-2"x6" BOARDS 3'9" LONG
2-2"x6" BOARDS APPROX 22' LONG
2-2"x4" BOARDS 4' LONG
2-2"x4" BOARDS 19½" LONG
6-2"x4" BOARDS 22" LONG
2-2"x4" BOARDS 12" LONG

Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

DWN BY: JOHN McLACHERN

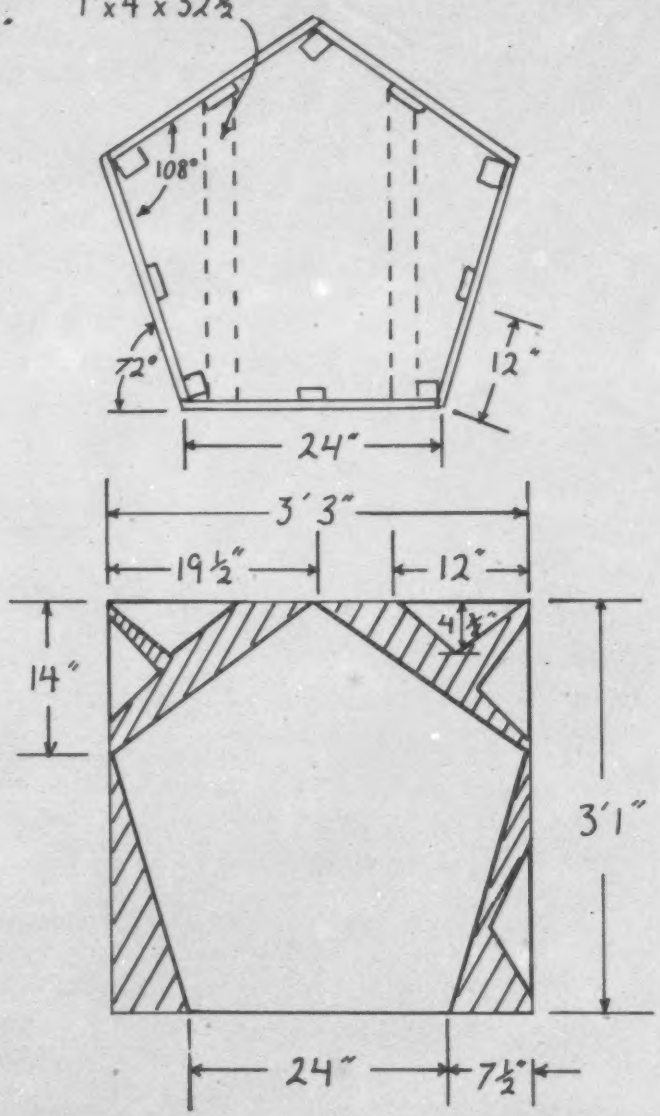
Hay or Grain Bunk

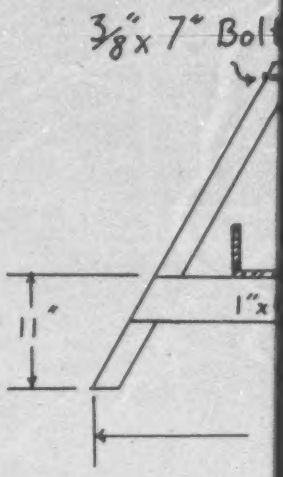
Scale: 3/4"=1'

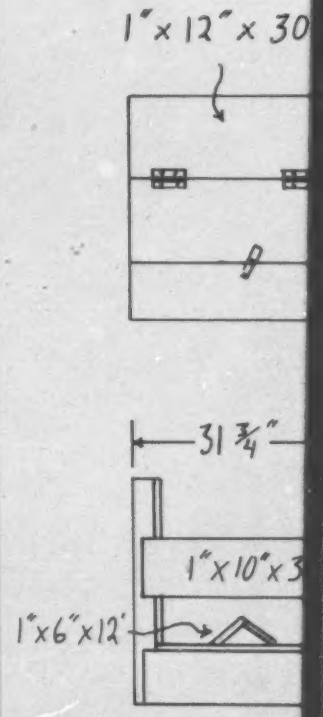


BILL OF MATERIAL

5 Pieces of 2" x 2" x 32" Lumber
5 Pieces of 1" x 2" x 27" Lumber
5 Pieces of 1" x 8" x 24" Lumber
5 Pieces of 1" x 4" x 24" Lumber
2 Pieces of 1" x 4" x 32 1/2" Lumber
1 Piece of 3'1" x 3'3" x 1/4" Plywood or Hardboard







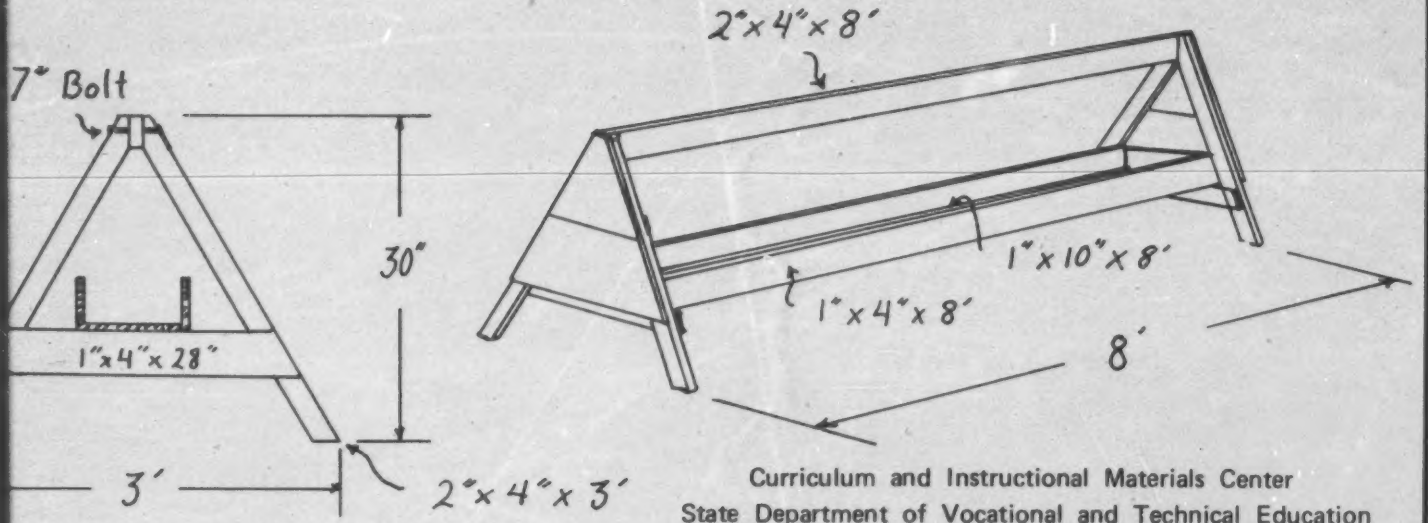
Grain Bunk

03:13

Scale: 3/4"=1'

BILL OF MATERIAL

4 Pieces of 2" x 4" x 3' Lumber
2 Pieces of 1" x 4" x 28" Lumber
1 Piece of 2" x 4" x 8' Lumber
2 Pieces of 1" x 4" x 8' Lumber
1 Piece of 1" x 10" x 8' Lumber
1 Piece of 1" x 10" x 8' Lumber
2 Pieces of 3/8" x 7" Bolt



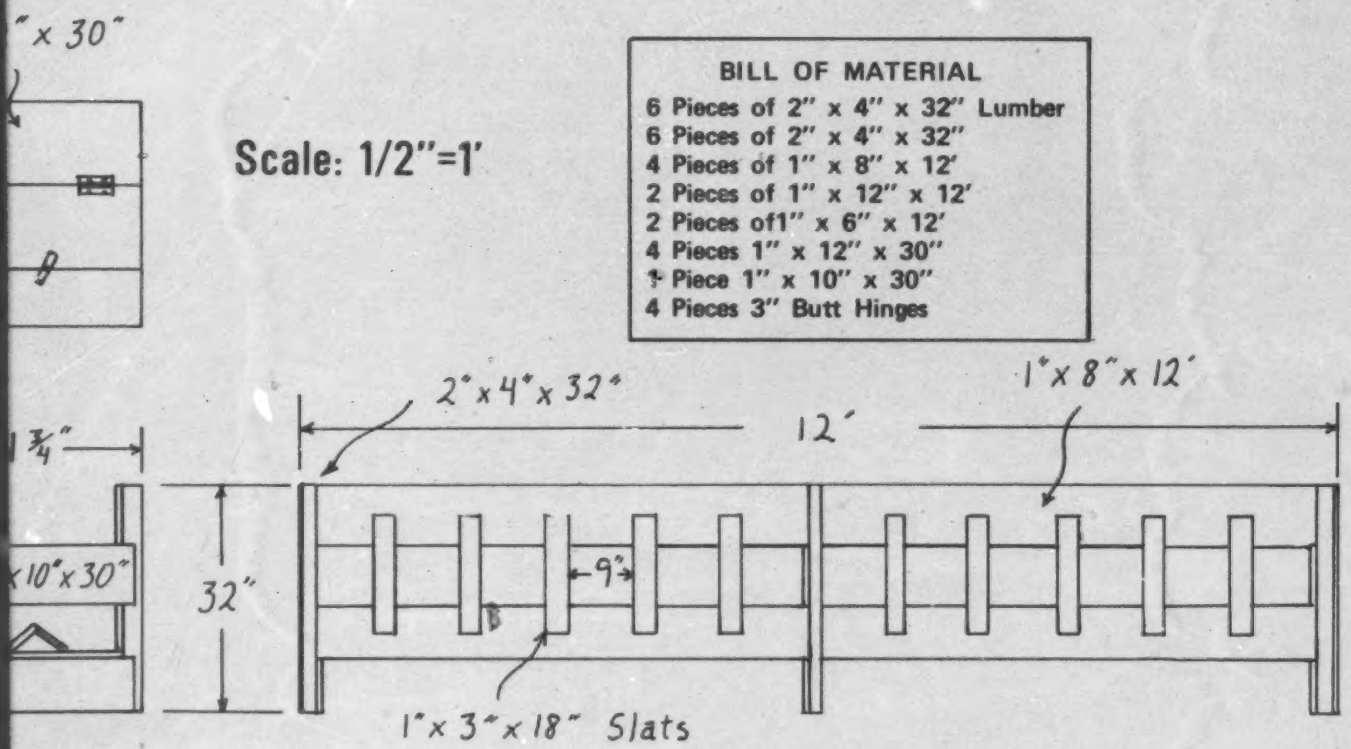
Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

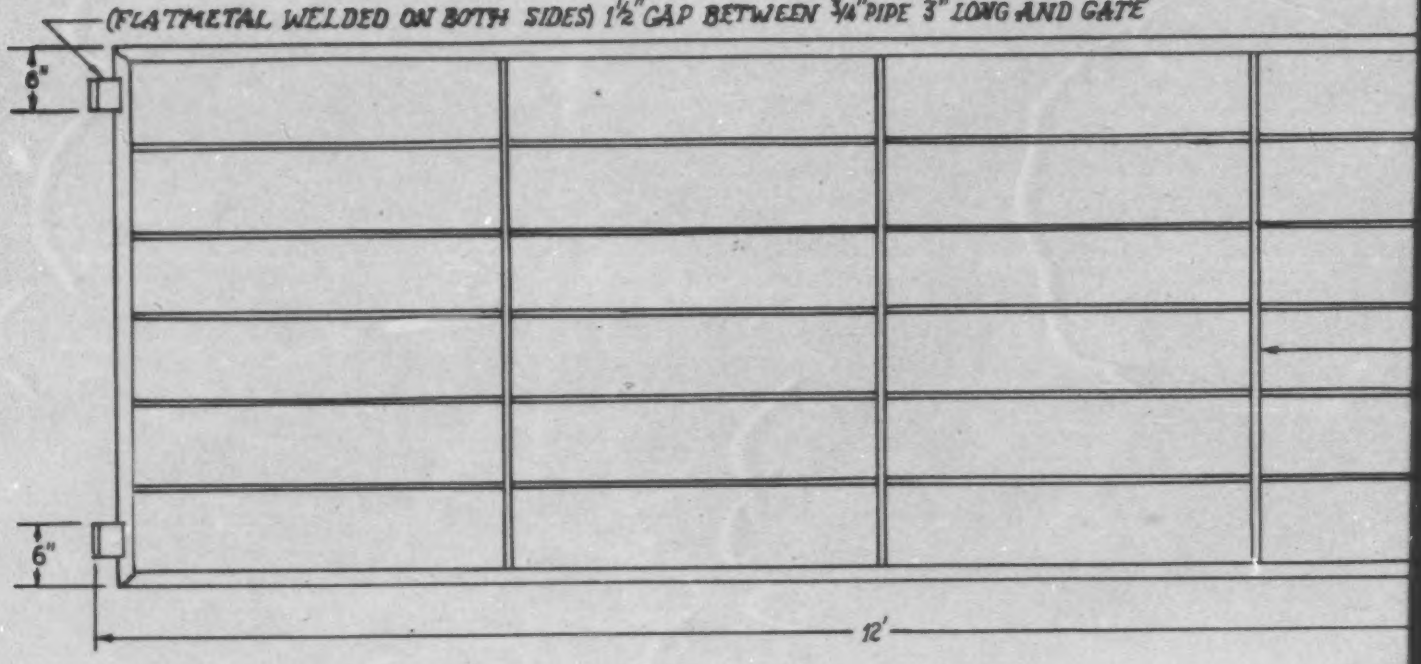
Hay and Grain Feeders

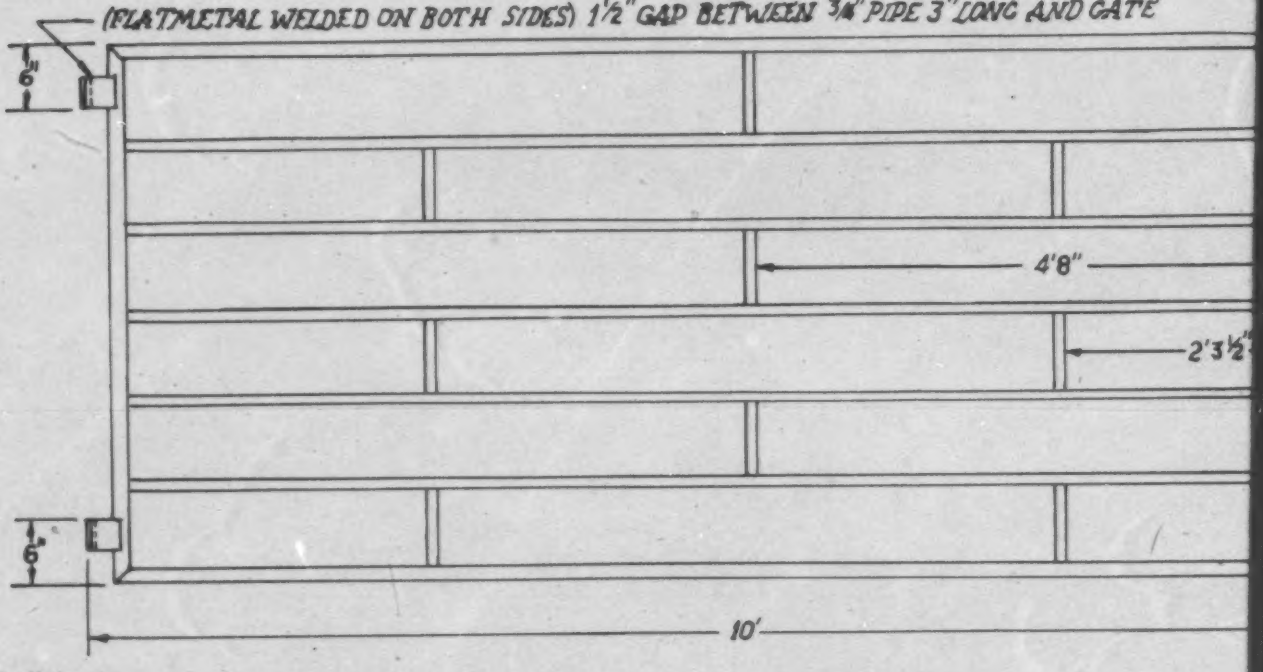
Scale: 1/2"=1'

BILL OF MATERIAL

6 Pieces of 2" x 4" x 32" Lumber
6 Pieces of 2" x 4" x 32"
4 Pieces of 1" x 8" x 12'
2 Pieces of 1" x 12" x 12'
2 Pieces of1" x 6" x 12'
4 Pieces 1" x 12" x 30"
1 Piece 1" x 10" x 30"
4 Pieces 3" Butt Hinges



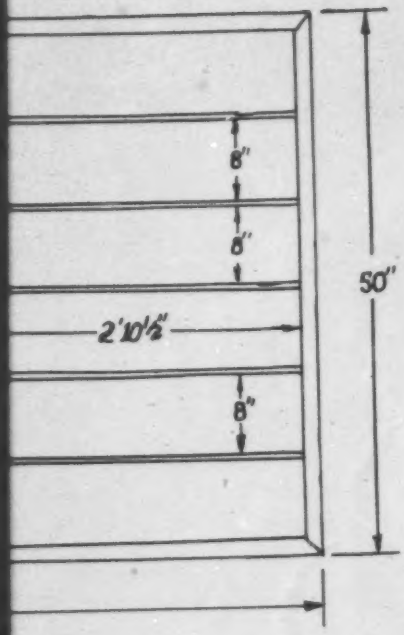




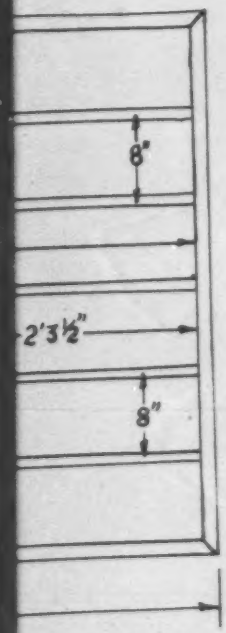
Courtesy of Jet-Nash
Vocational Agriculture Department

Gates

Scale: 3/4" = 1'



BILL OF MATERIAL
2 PIECES OF 1½" PIPE 11'9½" LONG
2 PIECES OF 1½" PIPE 50" LONG
5 PIECES OF 5/8" ROD 11'6" LONG
3 PIECES OF 5/8" ROD 47" LONG
2 PIECES OF 3/4" PIPE 3" LONG
4 PIECES OF FLATMETAL ¼"x2½"x3"



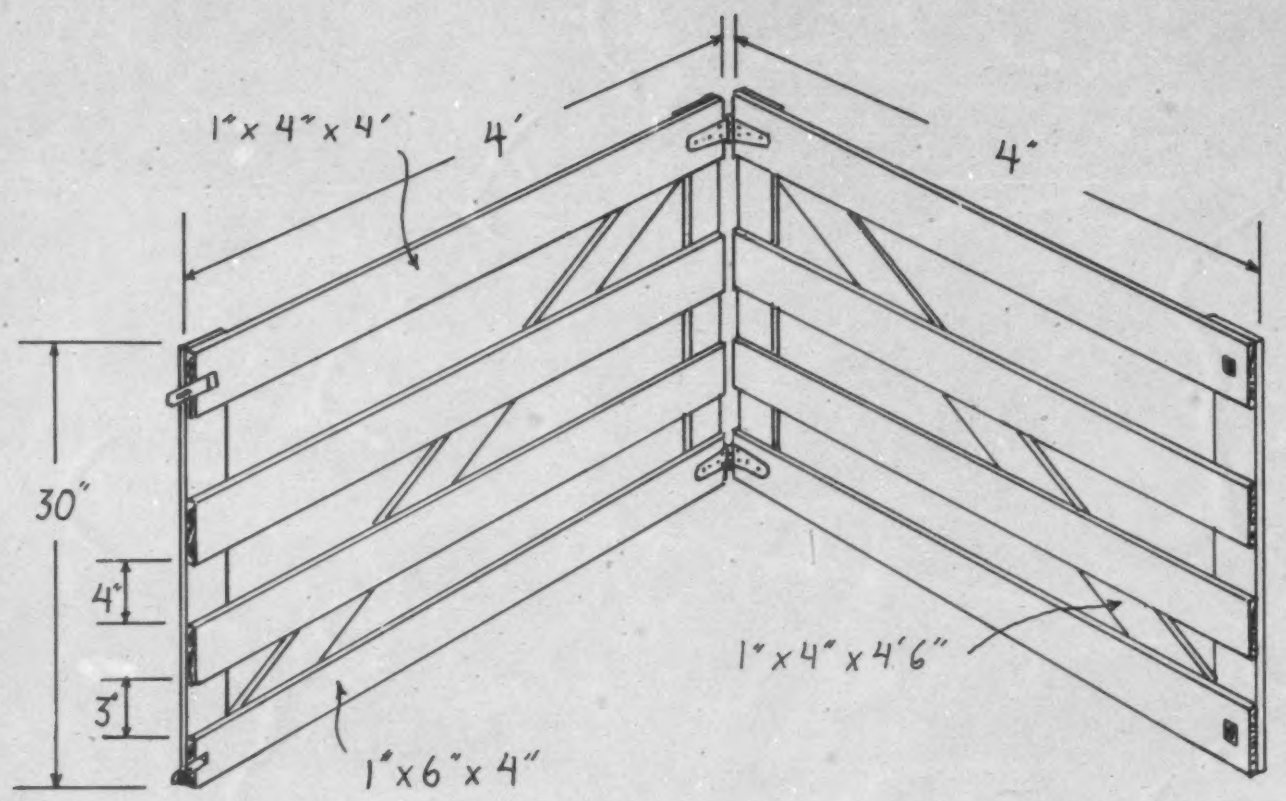
BILL OF MATERIAL
2 PIECES OF 1½ SQ TUBING 9'9½" LONG
2 PIECES OF 1½ SQ TUBING 50" LONG
5 PIECES OF 1" SQ TUBING 9'6½" LONG
9 PIECES OF 1" SQ TUBING 7¼" LONG
2 PIECES OF 3/4" PIPE 3" LONG
4 PIECES OF FLATMETAL ¼" x3" x3"

Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

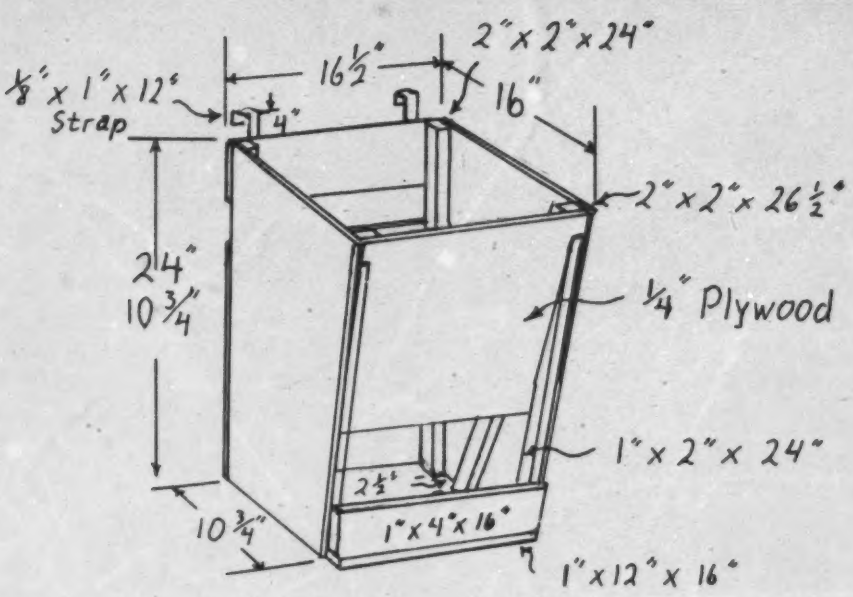
DWN BY: JOHN McEACHERN

Lambing Pen Panels

Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

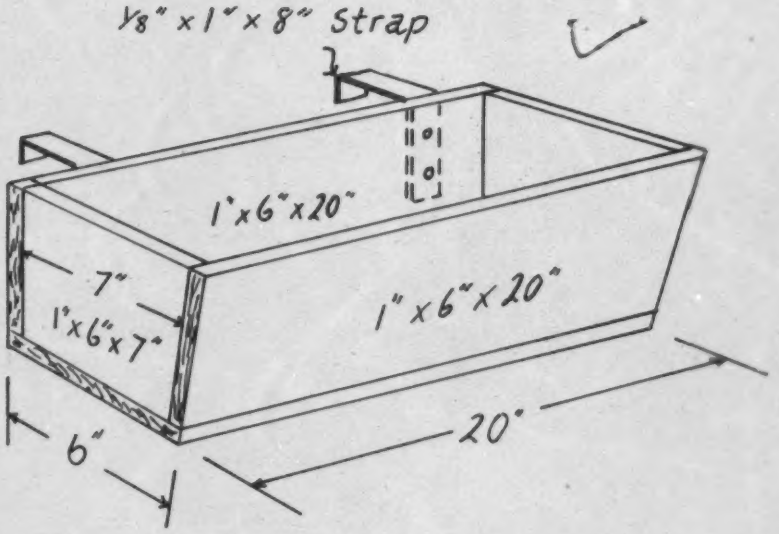


Portable Lambing Pen Panels
Can be Placed Against Walls
or 2 Sets Make 1 Pen



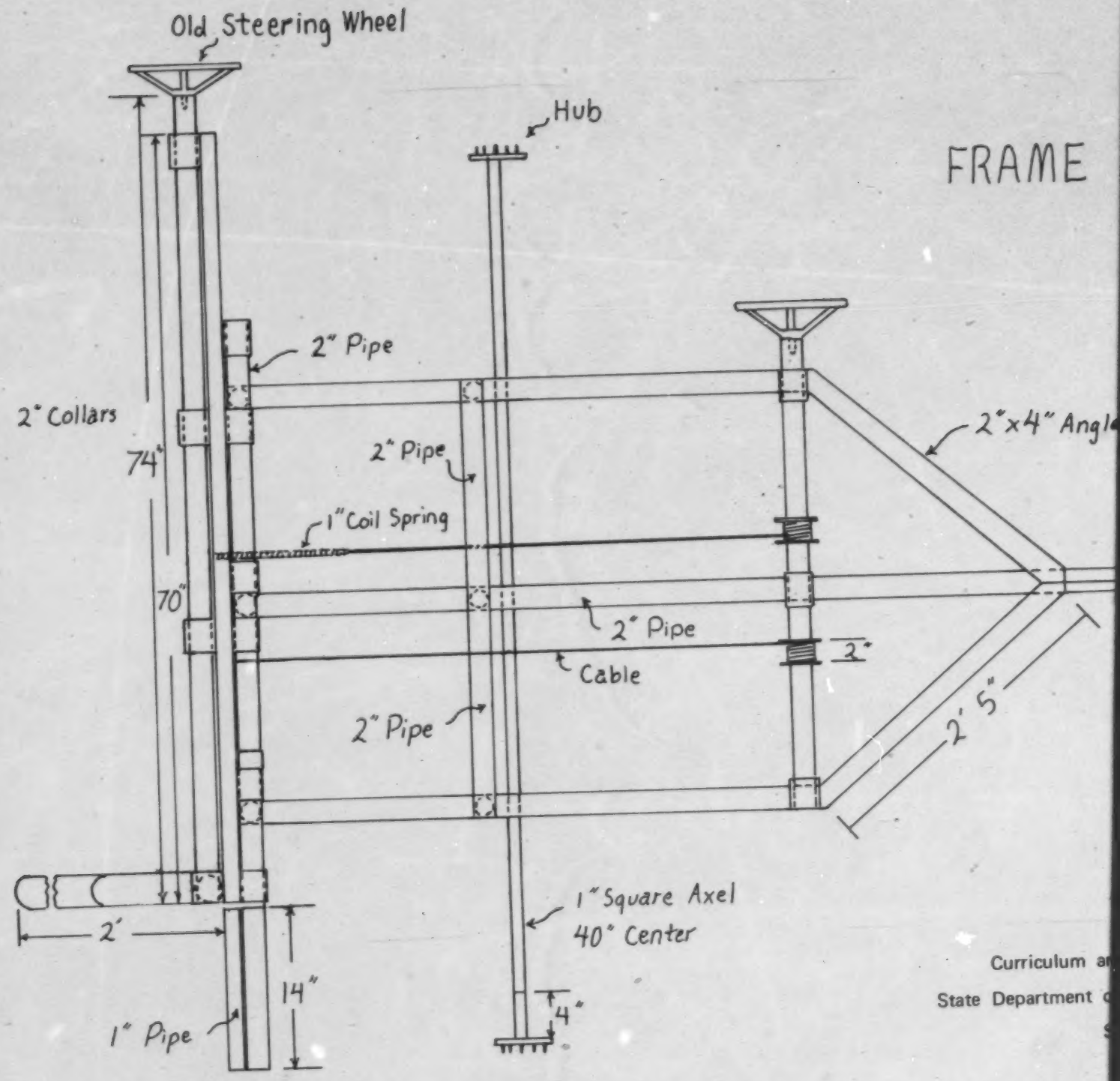
Portable Hay Rack for
Show or Lambing Pen

Portable Feed or Salt Box



Feed or Salt Box Can be Used
In Lambing Pens or at Shows

Tilting Calf



Curriculum a
State Department o

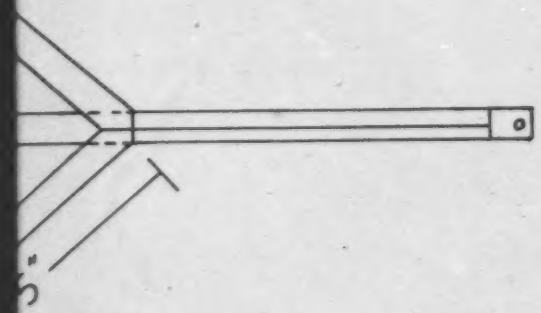
Courtesy of Davis
Vocational Agriculture Department

g Calf Hoof Trimming Table

Scale: 1"=1'

RAME

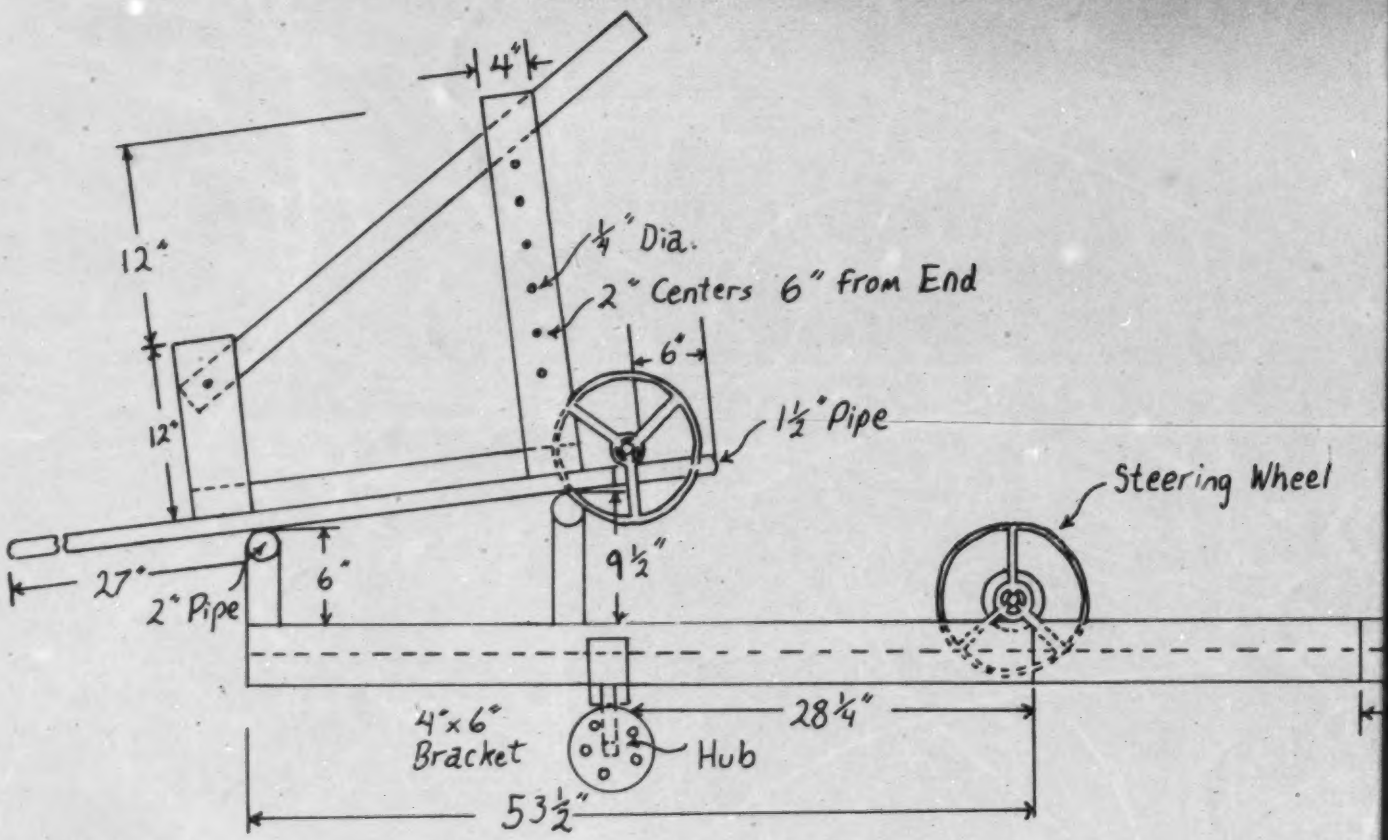
2"x4" Angle Iron

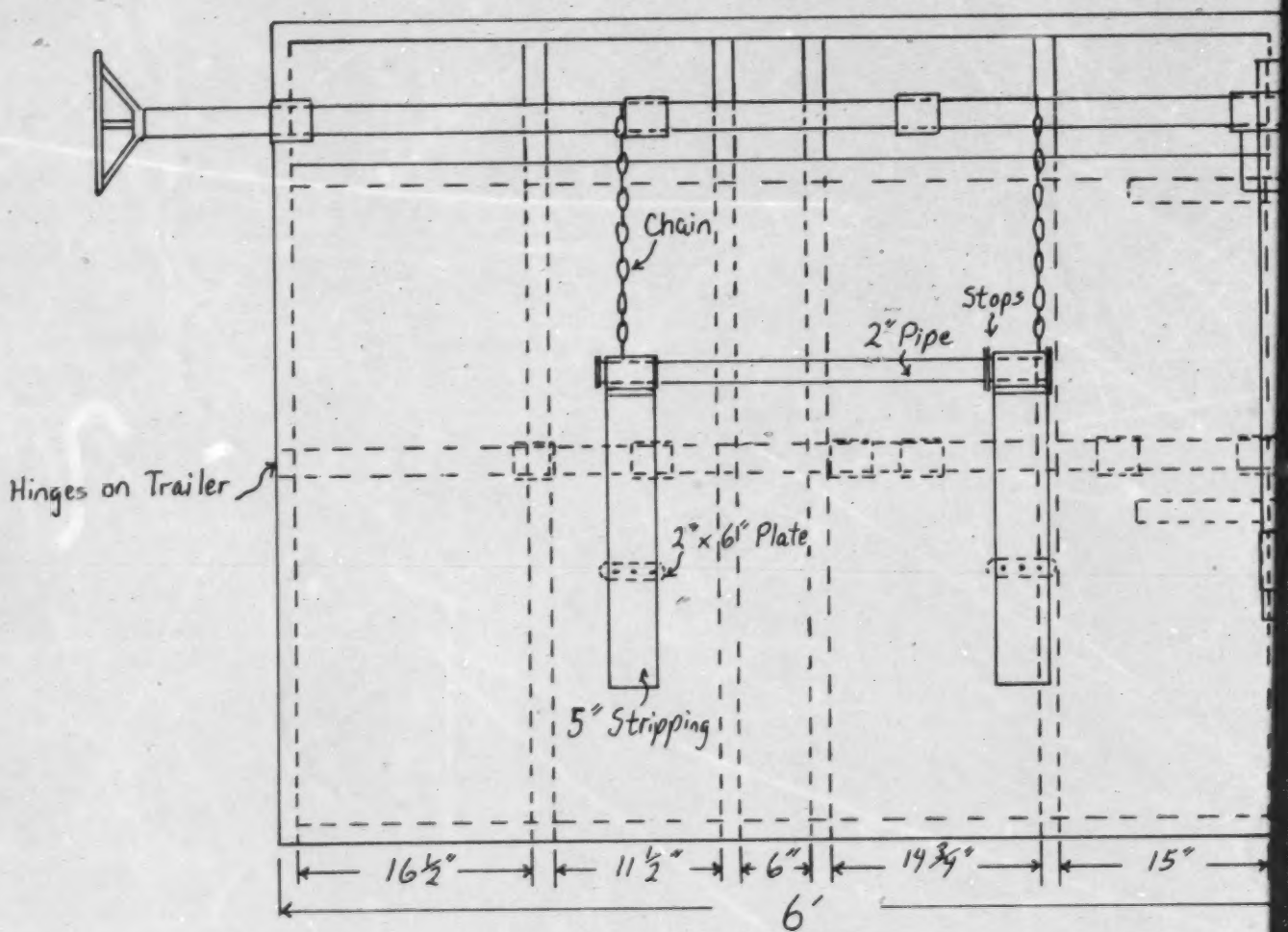


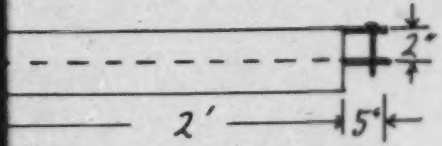
BILL OF MATERIAL

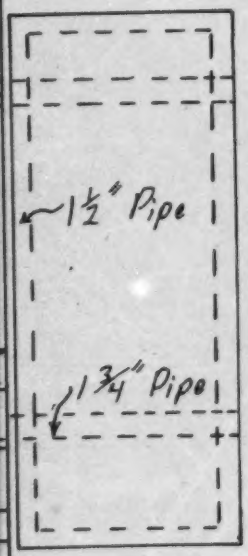
1 Piece of Sheet Metal 6' x 4'
1 Piece of 2" Pipe 32" Long
1 Piece of Sheet Metal 4' x 16"
4 Pieces of 1 1/2" Pipe 6' Long
6 Pieces of 1 1/2" Pipe 4' Long
2 Pieces of 1 1/2" Pipe 16" Long
2 Pieces of 1 1/2" Pipe 36" Long
2 Pieces of 1 3/4 Pipe 28" Long
12 Pieces of 1 3/4 Pipe 4" Long
1 Piece of 2" Pipe 72" Long
2 Pieces of 2" x 4" Angle Iron 50" Long
2 Pieces of 2" x 4" Angle Iron 2'5" Long
2 Pieces of 2" x 4" Angle Iron 24' Long
2 Pieces of 2" Pipe 40" Long
1 Piece of 1" Square Axel 80" Long
1 Piece of 2" Pipe 68" Long
2 Pieces of 4" x 5" Strap Metal
1 Piece of 2" Pipe 74" Long
1 Piece of 1" Pipe 19" Long
13 Pieces of 2" Pipe Collar 4" Long
2 Pieces of 2" x 4" Angle Iron 40" Long
3 Pieces of 2" PIpe 6" Long
3 Pieces of 2" Pipe 9 1/2" Long
2 Pieces of 1/4" Metal Strap 4" x 12"
2 Pieces of 1/4" Metal Strap 4" x 26"
1 Piece of 2" Pipe 40" Long
1 Piece of 2" Pipe 26" Long
2 Wheel Brackets 4" x 6"
2 Steering Wheels, 2 wheel hubs, 2 Cable Spools
2 Pieces of Metal Plate 2" x 6"
4 Pieces of Circular Metal 3" Diameter
2 Pieces of 5" Stripping and Medium Chain

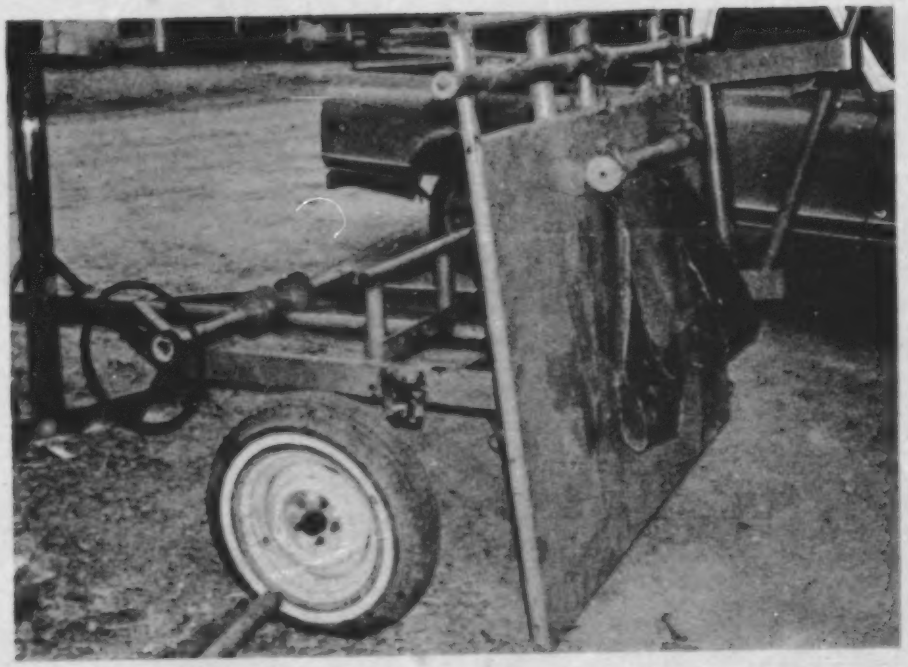
Curriculum and Instructional Materials Center
Department of Vocational and Technical Education
Stillwater, Oklahoma


4"
12"
12"
¼" Dia.
2" Centers 6" From End
6"
1½" Pipe
Steering Wheel
27"
2" Pipe
6"
9½"
4"x6"
Bracket
Hub
28¼"
53½"


Chain
Stops
2" Pipe
Hinges on Trailer
2"x6" Plate
5" Stripping
16½"
11½"
6"
14¾"
15"
6'


2'
5"


1½" Pipe
1¾" Pipe

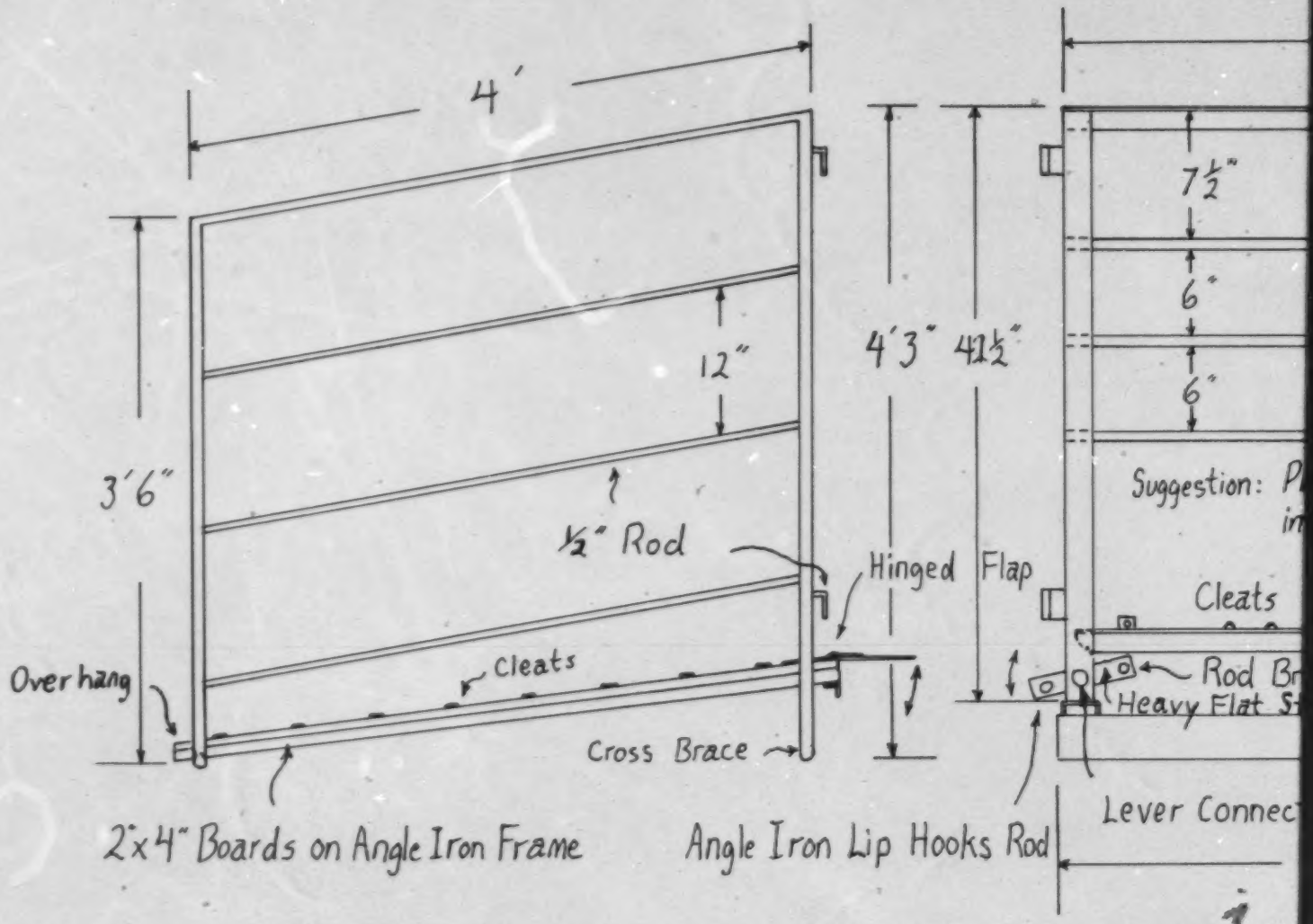


Hog Breeding Crate

Scale: 3/32"=1'

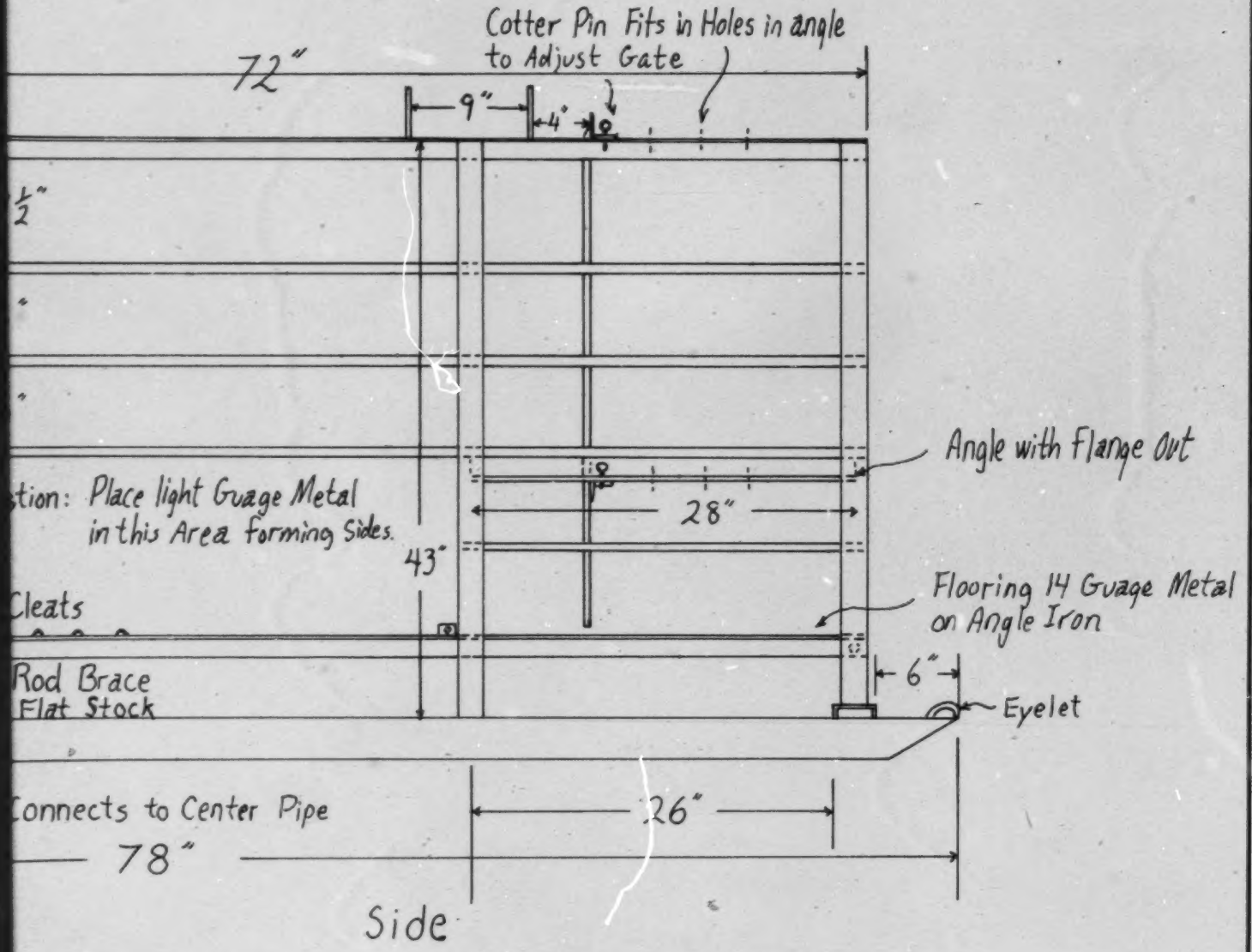
Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

2 Pieces of 3" C
2 Pieces of 3" C
6 Pieces of 2" Pi
1 Piece of 14 Gu
5 Pieces of 1 1/2
6 Pieces of 5/8"
2 Pieces of 1 1/2
2 Pieces of 5/8"
2 Pieces of 5/8"
2 Pieces of 1 1/2
4 Pieces of 5/8"
1 Piece of 3" Pi
1 Piece of 1 1/2
6 Pieces of 1 1/2
2 Pieces of 1" P
2 Pieces of 1 1/2
2 Pieces of 1 1/2

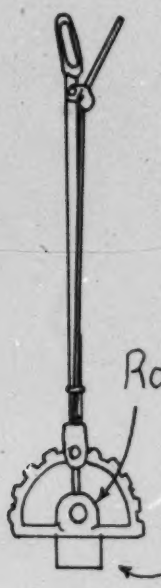


BILL OF MATERIAL

- s of 3" Channel Iron 78" Long
- s of 3" Channel Iron 30" Long
- s of 2" Pipe 42" Long
- of 14 Guage Metal 72" x 24"
- s of 1 1/2" Angle Iron 72" Long
- s of 5/8" Sucker Rod 72" Long
- s of 1 1/2" Angle Iron 28" Long
- s of 5/8" Sucker Rod 28" Long
- s of 5/8" Rod 38" Long
- s of 1 1/2" Angle Iron 30" Long
- s of 5/8" Sucker Rod 35" Long
- of 3" Pipe 42" Long
- of 1 1/2" Strap 80" Long
- s of 1 1/2" Angle Iron 2" Long
- s of 1" Pipe 30" Long
- s of 1 1/2" Angle Iron 18" Long
- s of 1 1/2" Angle Iron 22" Long
- 2 Pieces of 1 1/2" Angle Iron 8" Long
- 1 Lever from Old Cultivator
- 2 Pieces of 3/4" Rod 30" Long
- 2 Pieces of 1 1/2 " Strap 30" Long
- 2 Pieces of 1 1/2" Angle Iron 30" Long
- 6 Pieces of 5/8" Rod 30" Long
- 2 Pieces of 1" Angle Iron 4'6" Long
- 1 Piece of 1" Angle Iron 24" Long
- 1 Piece of 14 Guage Metal 6" x 24"
- 2 Pieces of 1" Pipe 30" Long
- 2 Pieces of 1" Pipe 3'6" Long
- 2 Pieces of 1" Pipe 4'3" Long
- 8 Pieces of 5/8" Rod 4' Long
- 4 Pieces of 1/2" Rod 5" Long
- 4 Pieces of 3/4" Pipe 3" Long
- 2 Hinges 2" x 4" Flooring Boards and Wood Strips for Cleats

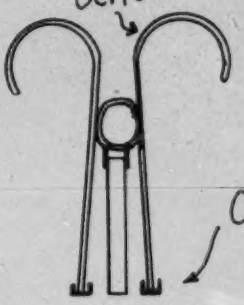


Implement Lever from
Old Cultivator

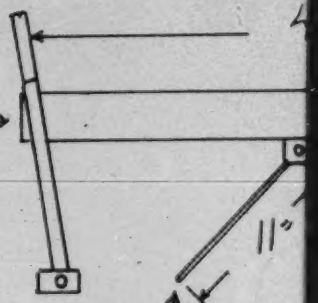


Rod Connects
Platform

Channel Welded to Frame

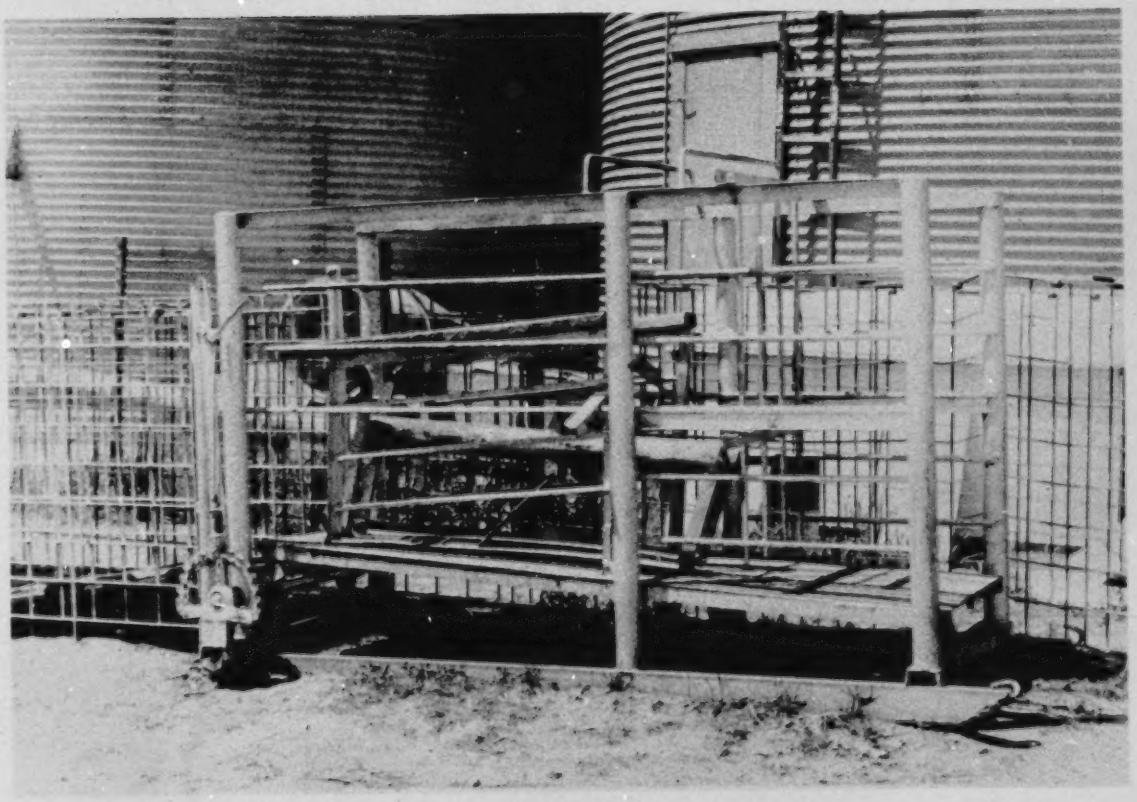


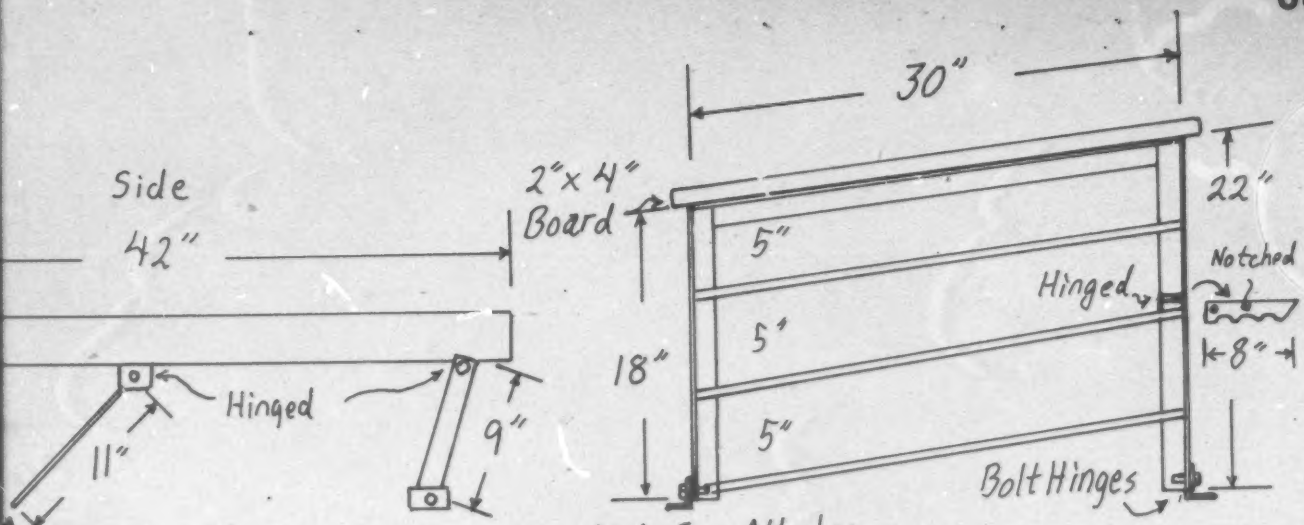
Rear



Strap Catche
on Cleats

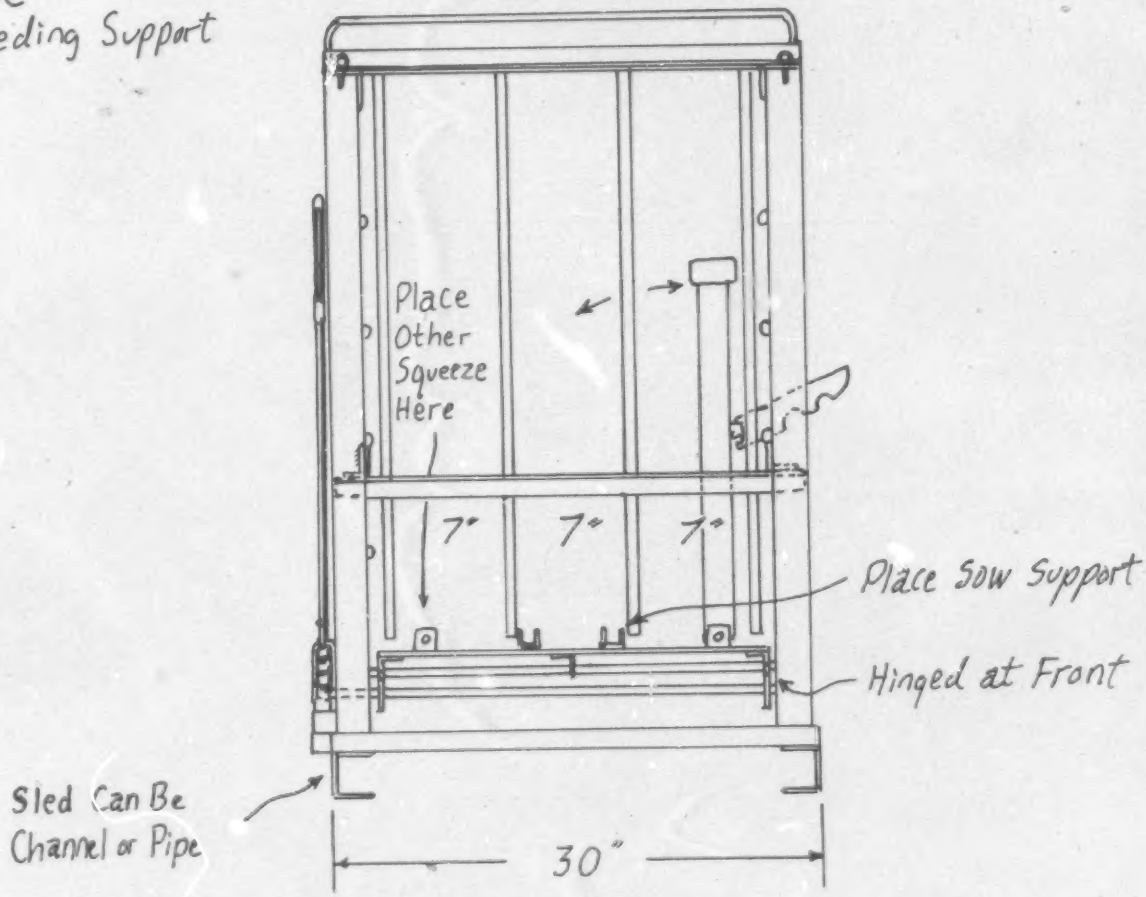
Si
Sow Bre



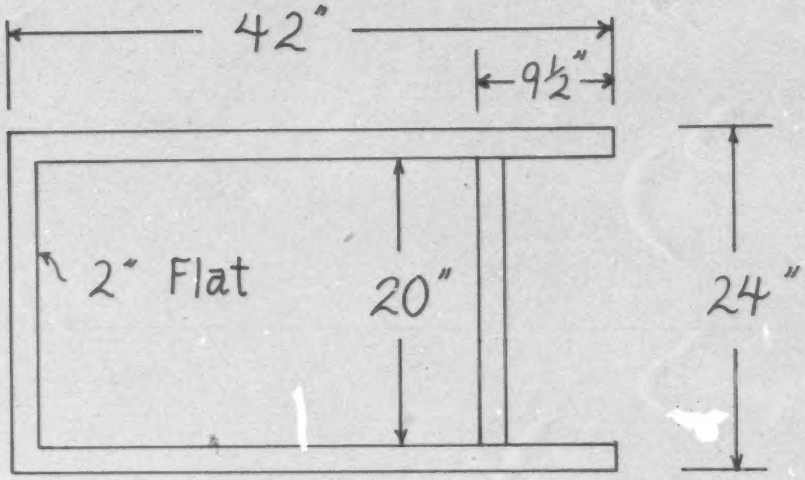


ap Catches
Cleats

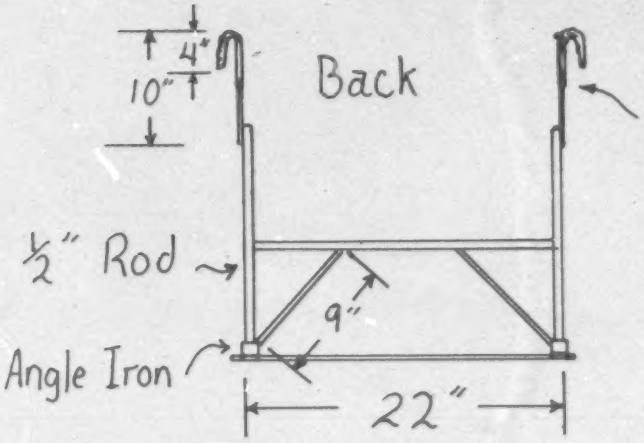
Side
ow Breeding Support



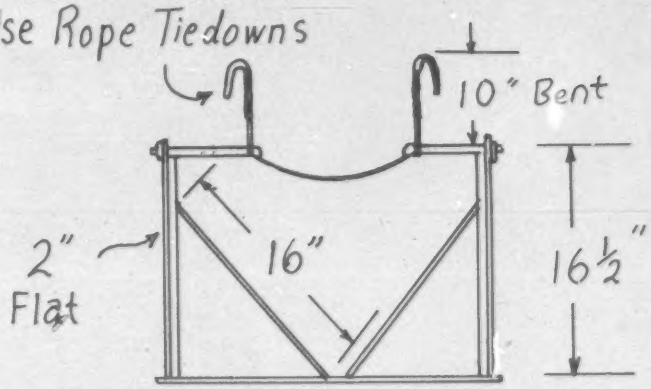
Front
Gate Detail



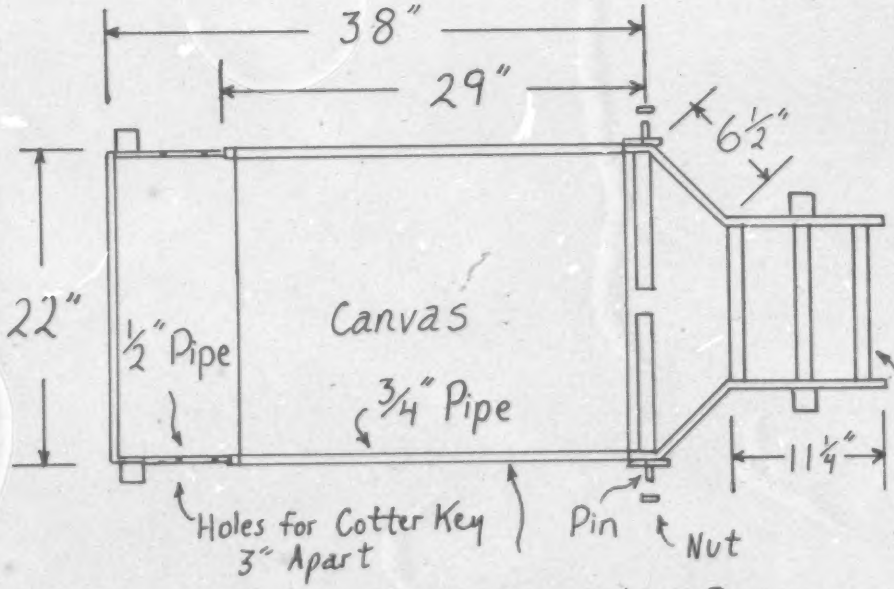
Stand Viewed From Above



1½" Strap to Secure Legs
Padded with Tape
Use Rope Tiedowns



Front



Frame
Viewed From
Above

1" Strap for Head Rest

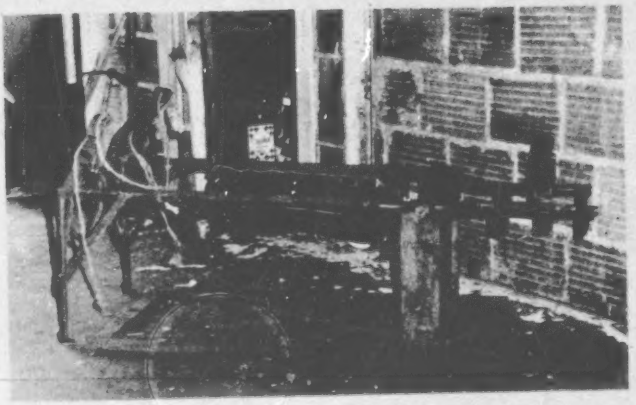
Adjustable Body

Sheep Pregnancy Testing Stand

Scale: 1"=1'

BILL OF MATERIAL

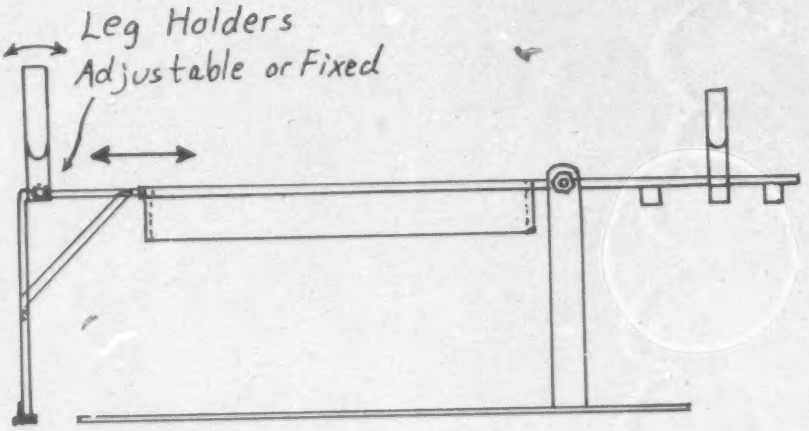
1 Piece of 3/16" Flat Stock 2" Wide and 132" Long
2 Pieces of 3/16" Flat 16 1/2" Long and 4" Wide
2 Pieces of 3/16" Flat 16" Long and 2" Wide
2 Pieces of 1" x 1" Angle Iron 1" Long
1 Piece of 1/2" Pipe 75" Long
2 Pieces of 3/4" Pipe 48" Long
5 Pieces of 1" Strap 12" Long
2 Pieces of 2" Flat 14" Long
2 Pieces of 2" Flat 10" Long



Drawing has been Modified From Photograph

° Bent

16½"



om

Rest

Side View

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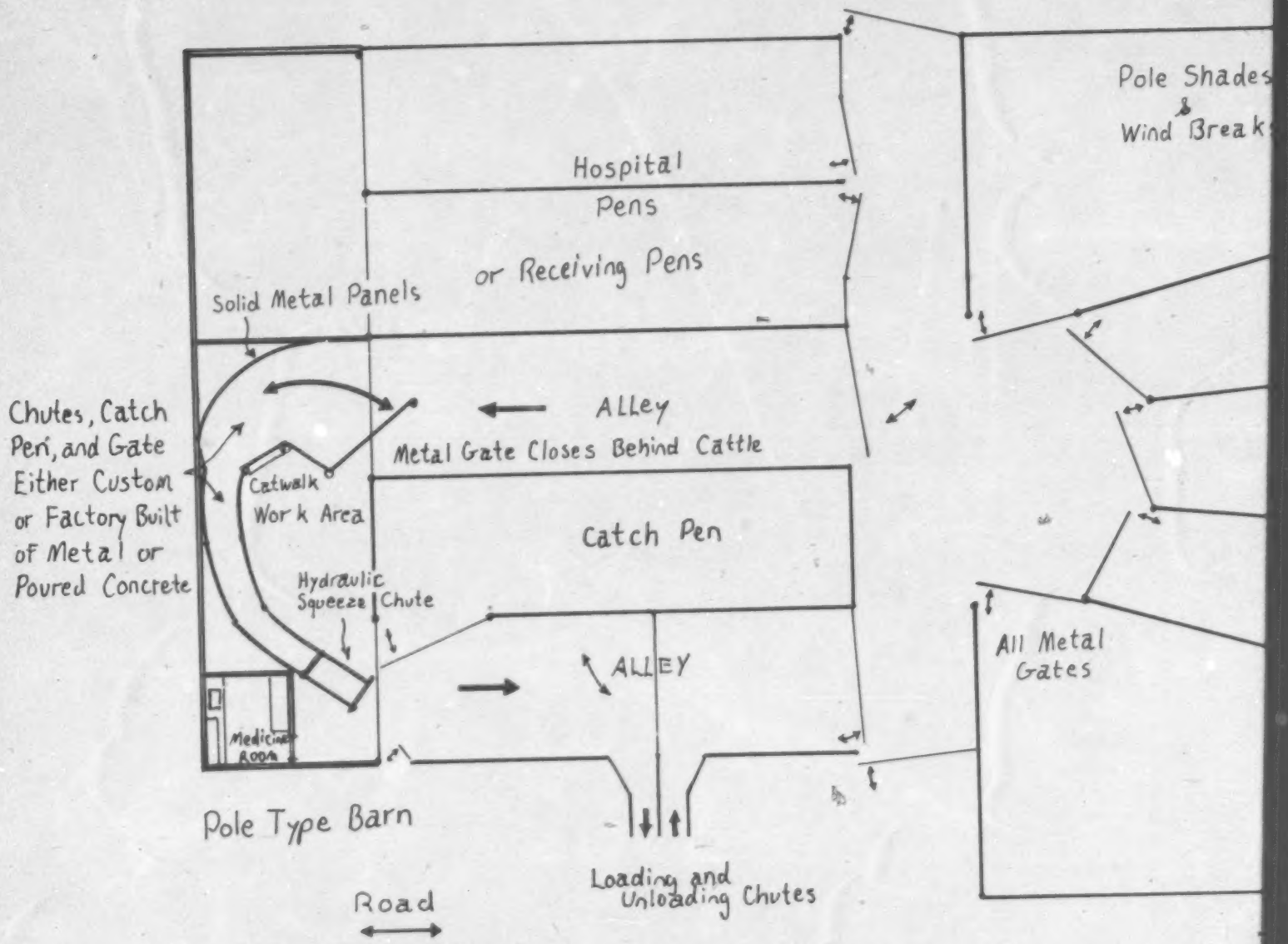
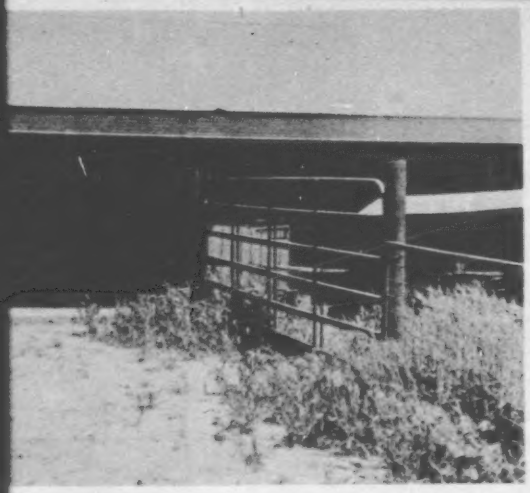
State Department of Vocational and Technical Education
Stillwater, Oklahoma

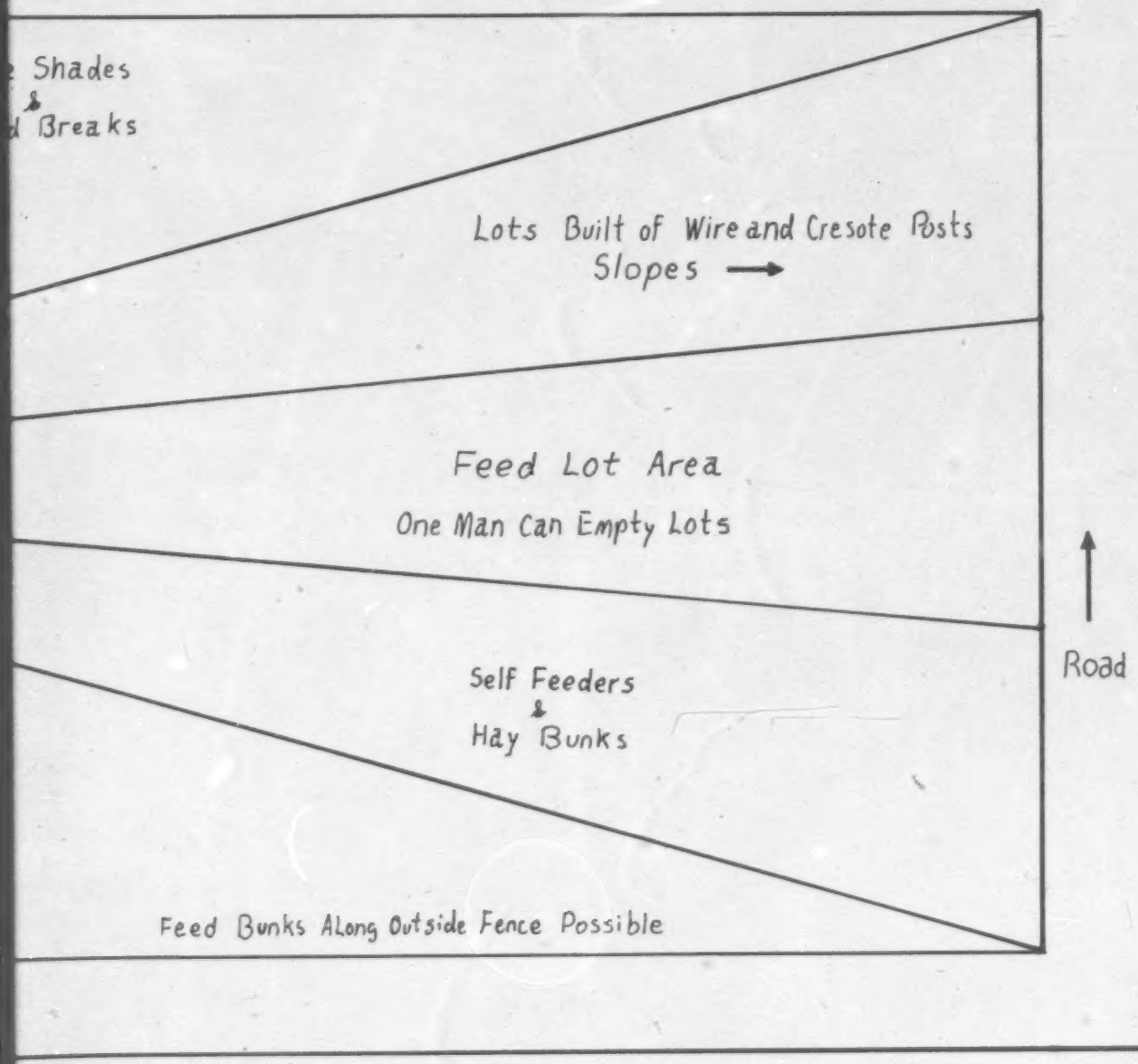
Feed Lot Layout

Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

Layout Designed For Maxium Use of Space and Minimum Labor Demands All-Weather Work Area and Easy Handling Pens





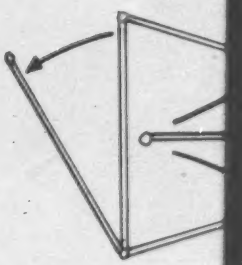

Shades
& Breaks
Lots Built of Wire and Cresote Posts
Slopes
Feed Lot Area
One Man Can Empty Lots
Road
Self Feeders
&
Hay Bunks
Feed Bunks Along Outside Fence Possible

Curriculum and Instru
State Department of Vocati
Stillwater,

Folding Sorting Gate

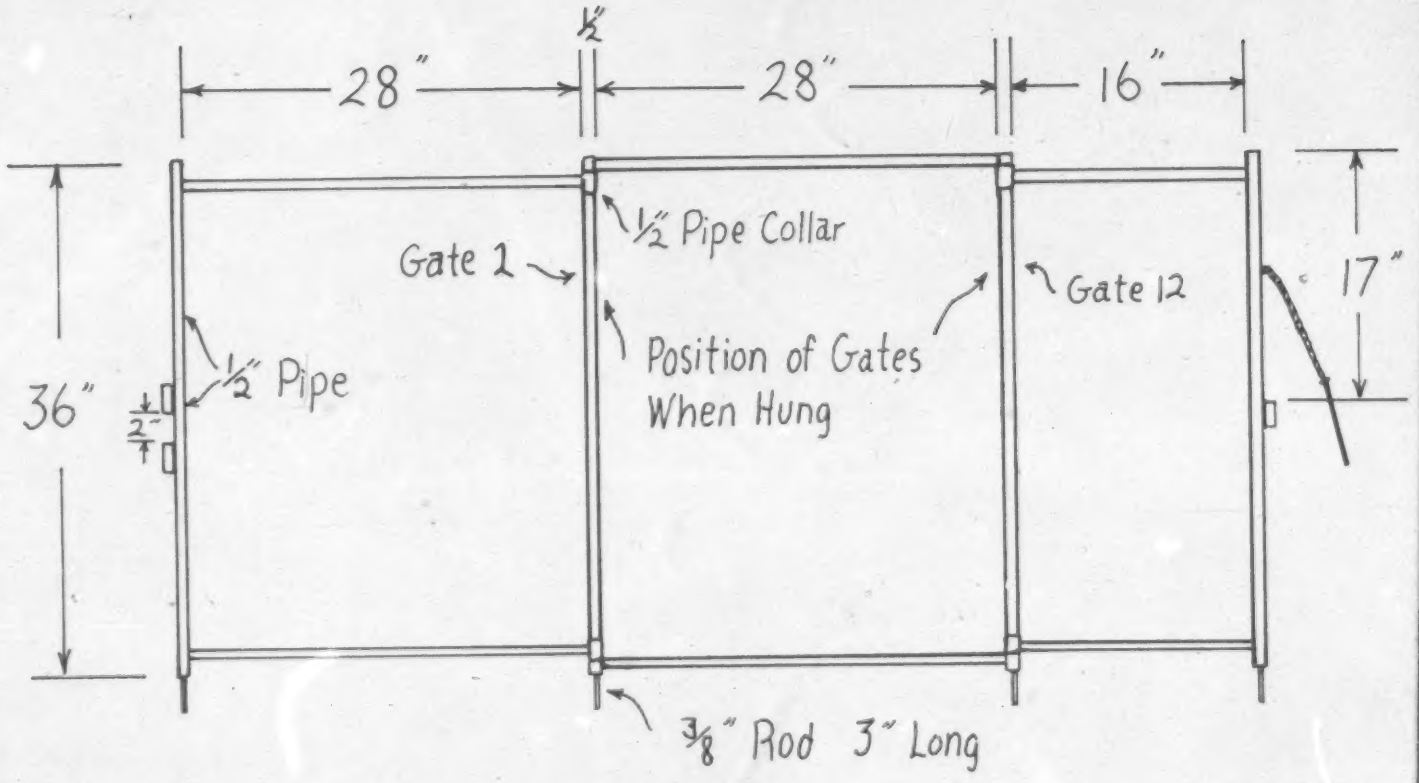
Scale: 1"=1'

Place Ga
Chute or a
Between



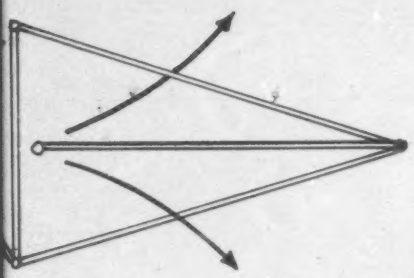
BILL OF MATERIAL

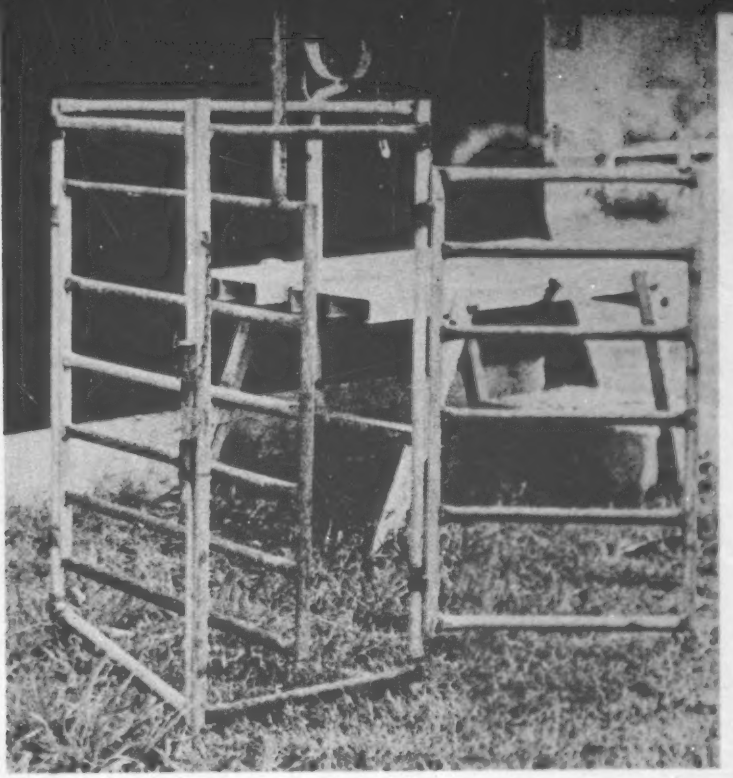
4 Pieces of	½" Pipe 36" Long
4 Pieces of	½" Pipe 28" Long
2 Pieces of	½" Pipe 16" Long
3 Pieces of	½" Pipe 2" Long
4 Pieces of	½" Pipe Collar 2" Long
12 Pieces of	½" Pipe 15" Long
1 Piece of	½" Pipe 38" Long
1 Piece of	½" Pipe 40" Long
1 Piece of	½" Pipe 28" Long
1 Piece of	½" Pipe 30" Long
4 Pieces of	3/8" Rod 6" Long

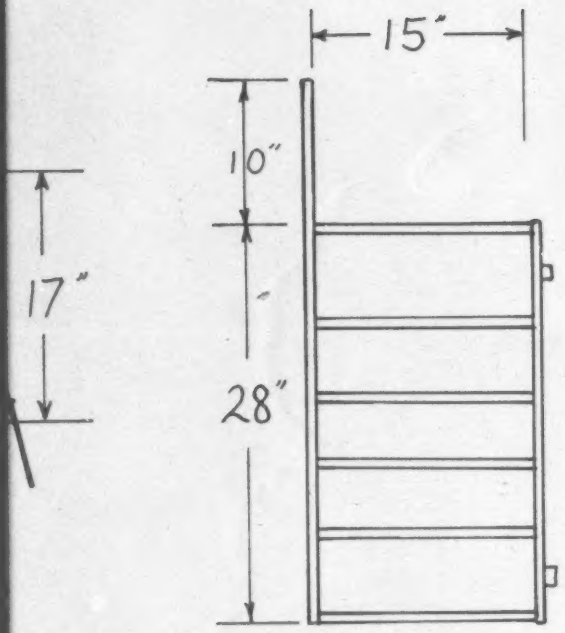


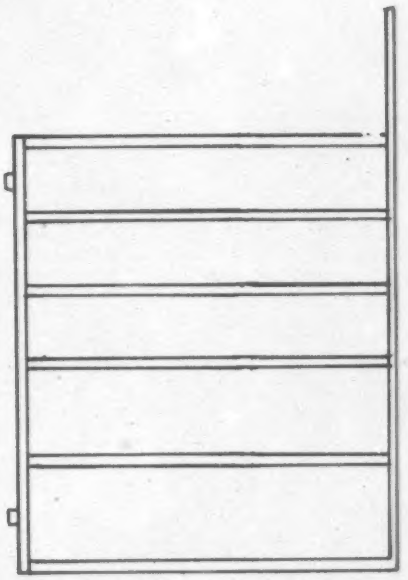
Frame Folded Out

ace Gate at head of
ute or on Fence Row
etween Pens



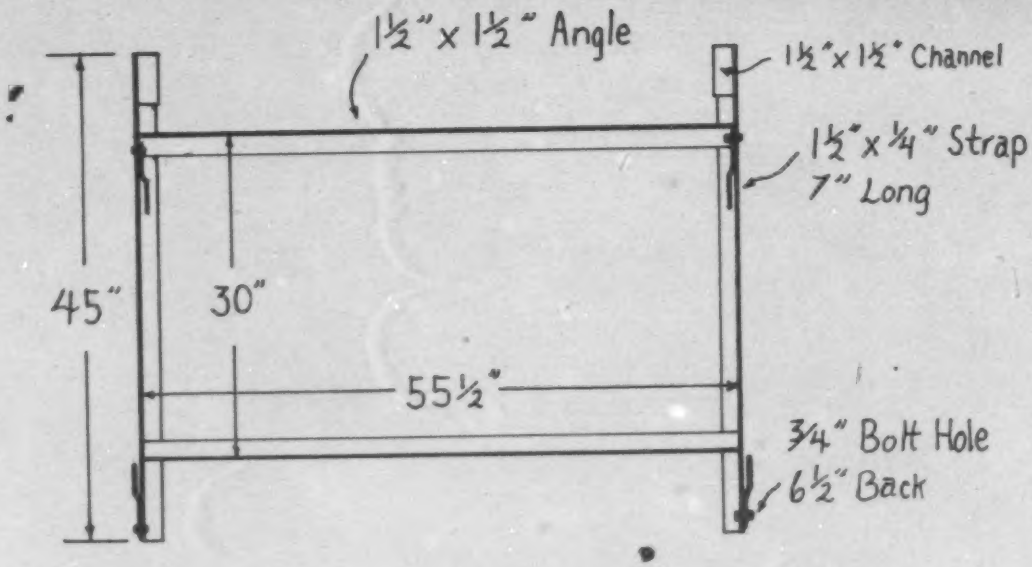






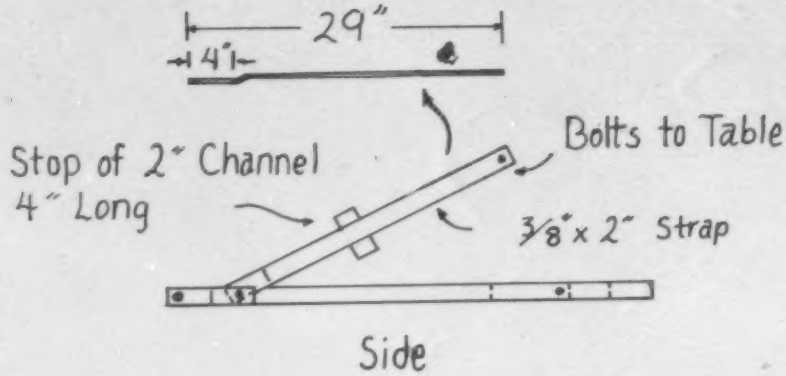
Gate 1 Gate 2

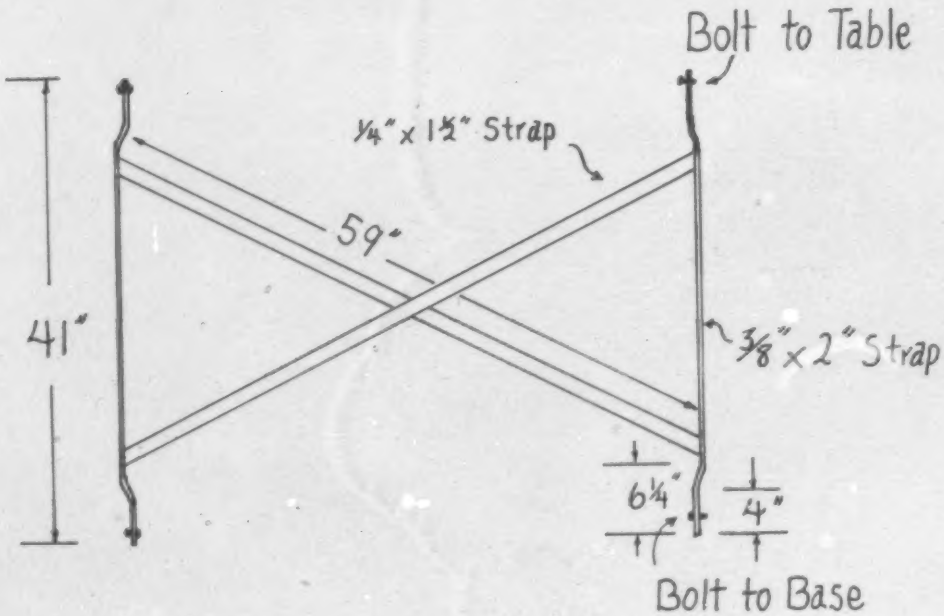
Gates

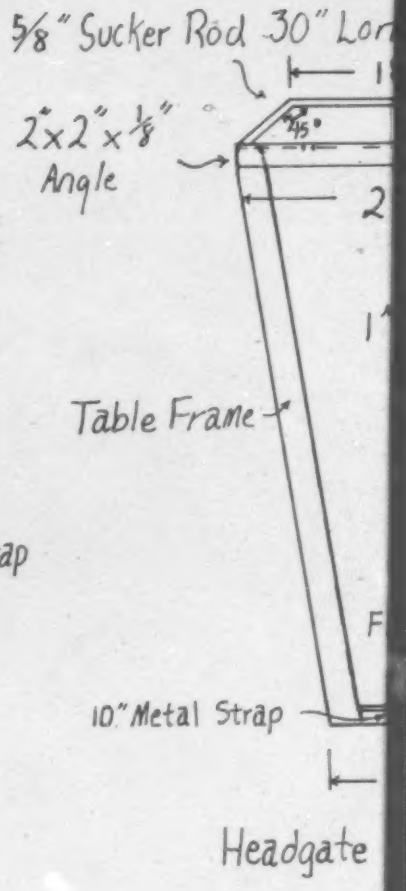


Calf Crad

Scale: 3/4"=





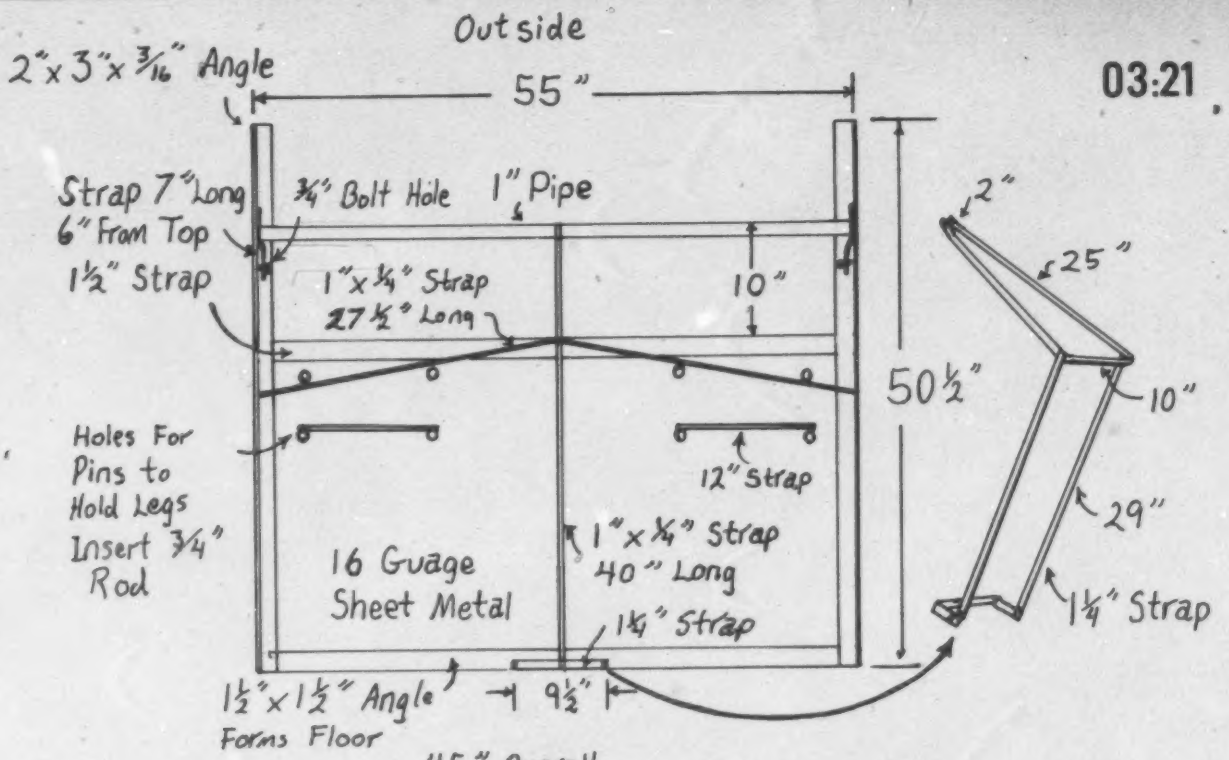


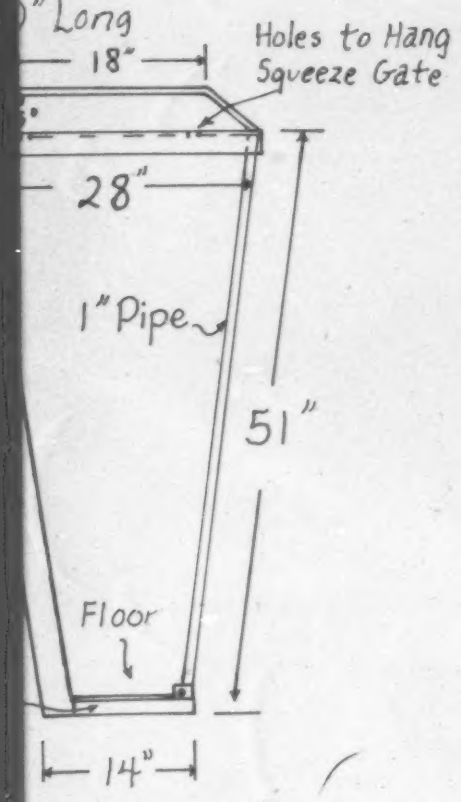
Courtesy of Guthrie
Vocational Agriculture Department

03:21

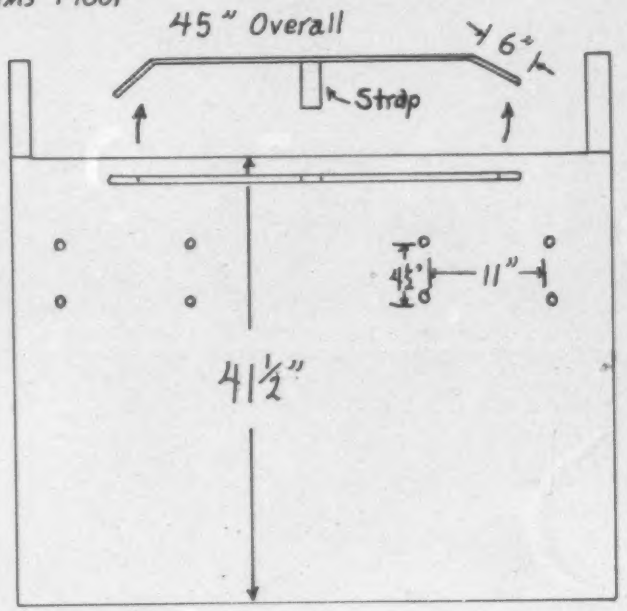
Cradle

3/4"=1'

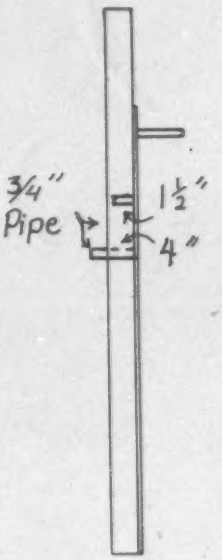




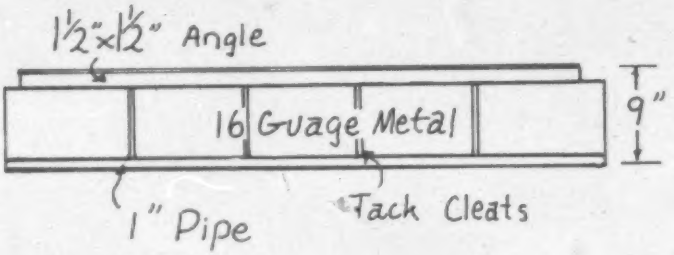
ate Frame For Both Ends



Inside



Side



Floor as seen from Below

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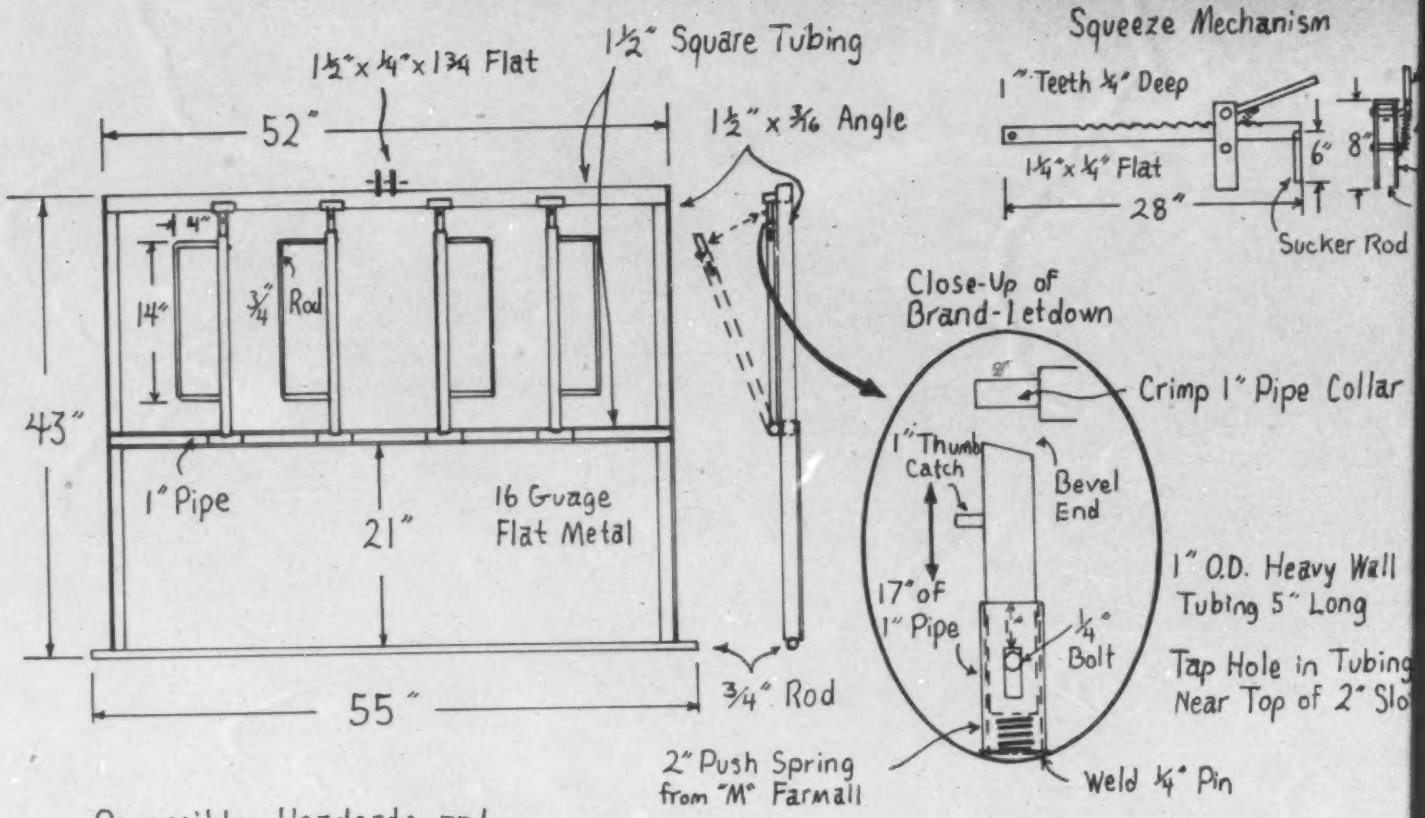
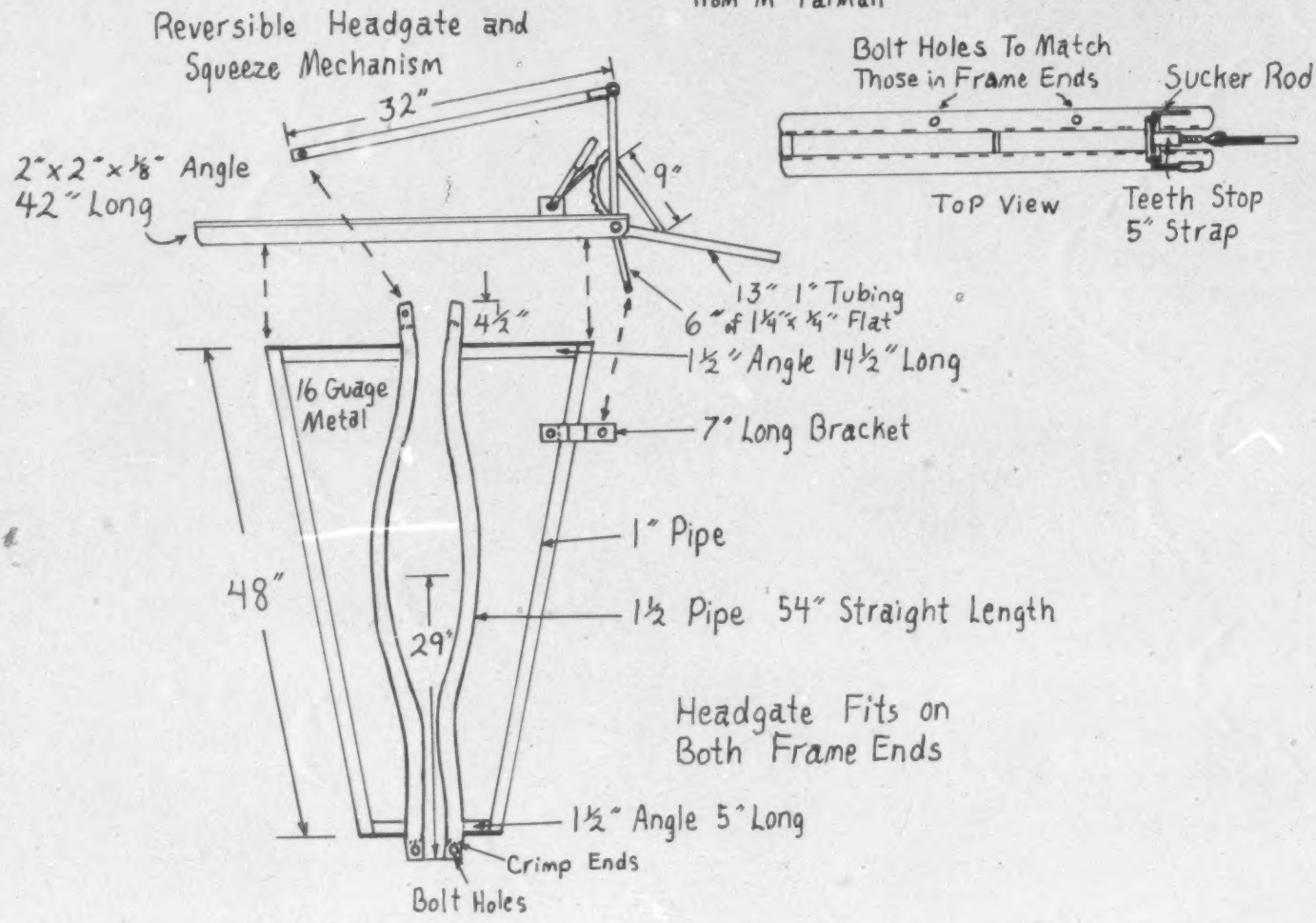
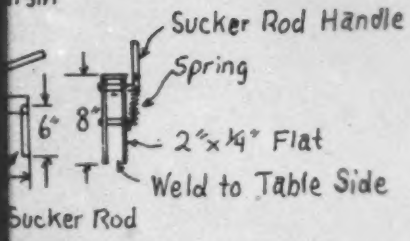
State Department of Vocational and Technical Education
Stillwater, Oklahoma


1½" x ¼" x 1¾ Flat
1½" Square Tubing
52"
1½" x 3/16 Angle
4"
14"
¾" Rod
43"
1" Pipe
21"
16 Guage Flat Metal
55"
¾" Rod
Squeeze Mechanism
1" Teeth ¼" Deep
1¼" x ¼" Flat
6"
8"
28"
Sucker Rod
Close-Up of Brand-Letdown
Crimp 1" Pipe Collar
1" Thumb Catch
Bevel End
17" of 1" Pipe
¼" Bolt
1" O.D. Heavy Wall Tubing 5" Long
Tap Hole in Tubing Near Top of 2" Slo
2" Push Spring from "M" Farmall
Weld ¼" Pin


Reversible Headgate and Squeeze Mechanism
32"
2" x 2" x ⅛" Angle 42" Long
9"
13" 1" Tubing
6" of 1¼" x ¼" Flat
4½"
1½" Angle 14½" Long
16 Guage Metal
7" Long Bracket
1" Pipe
48"
29"
1½ Pipe 54" Straight Length
Headgate Fits on Both Frame Ends
1½" Angle 5" Long
Crimp Ends
Bolt Holes
Bolt Holes To Match Those in Frame Ends
Sucker Rod 20" Lo
Top View
Teeth Stop 5" Strap

ism



pe Collar

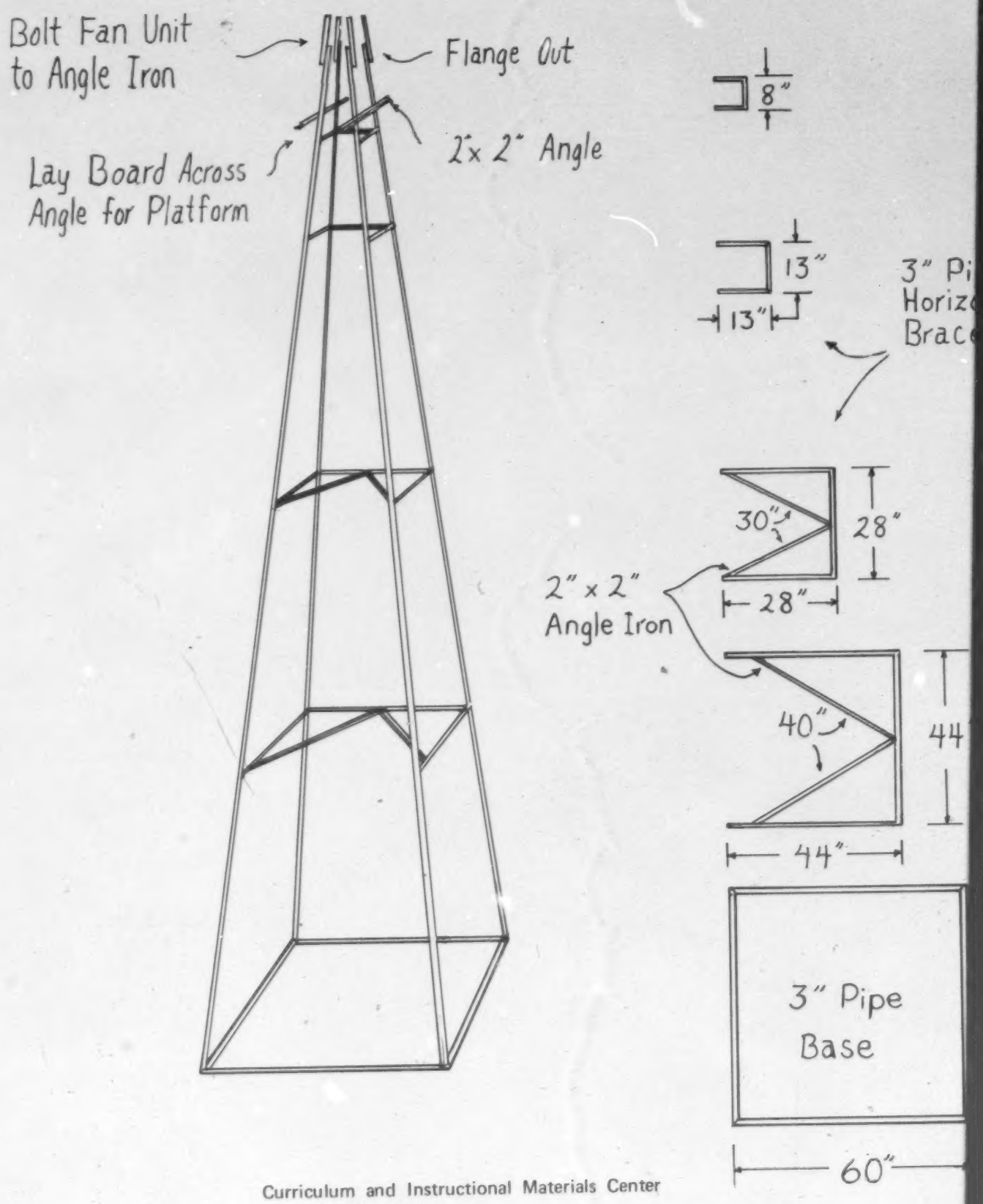
eavy Wall
" Long

in Tubing
of 2" Slot

od 20" Long

BILL OF MATERIAL

2 Pieces of 1½" x 1½" Angle Iron 55½" Long
2 Pieces of 1½" x 1½" Angle Iron 45" Long
2 Pieces of 1½" x 1½" Angle Iron 4" Long
4 Pieces of 1½" x ¼" Strap 7" Long
2 Pieces of 3/8" x 2" Strap 29" Long
2 Pieces of 2" Channel 4" Long
2 Pieces of 1½" x ¼" Strap 59" Long
2 Pieces of 3/8" x 2" Strap 45½" Long
2 Pieces of 2" x 2" x 1/8" Angle Iron 28" Long
2 Pieces of 1" Pipe 51" Long
2 Pieces of 5/8" Sucker Rod 30" Long
1 Piece of 1½" x 1½" Angle Iron 52" Long
1 Piece of 1" Pipe 55" Long
1 Piece of 16 Guage Metal 7" x 55"
2 Pieces of Metal Strap 10" Long
2 Pieces of 2" x 3" x 3/16" Angle Iron 50½" Long
1 Piece of 16 Guage Sheet Metal 55" x 41½"
1 Piece of 5/8" Sucker Rod 45" Long
2 Pieces of 1½" x ¼" Strap 7" Long
1 Piece of 1½" Strap 52" Long
2 Pieces of 1" x ¼" Strap 27½" Long
1 Piece of 1" Pipe 55" Long
1 Piece of 1" x ¼" Strap 40" Long
1 Piece of 1¼" Strap 14" Long
1 Piece of 1¼" Strap 20' Long
1 Piece of 16 Guage Sheet Metal 21" x 52"
1 Piece of 1½" Square Tubing 52" Long
1 Piece of ¾" Rod 55" Long
1 Piece of 1" Pipe 52" Long
4 Pieces of 1" Pipe 17" Long
4 Pieces of 1" O.D. Heavy Wall Tubing 5" Long
4 Pieces of 1" Pipe Collar 1" Long
4 Pieces of ¼" Bolt & ¼" Pin
4 Pieces of 2" Push Spring
4 Pieces of ¾" Rod 22" Long
2 Pieces of 1" Pipe 48" Long
2 Pieces of 1½" Pipe 54" Long
2 Pieces of 1½" Angle Iron 14½" Long
2 Pieces of 1½" Angle Iron 5" Long
1 Piece of 16 Guage Metal 28" x 48"
1 Piece 1¼" x ¼ Flat 7" Long
2 Pieces of 2" x 2" x 1/8" Angle Iron 42" Long
1 Piece of ¾" Tubing 13" Long
1 Piece of 1¼" x ¼" Flat 55" Long
1 Piece of 5/8" Rod 20" Long
1 Piece of 1¼" x ¼" Flat 28" Long
1 Piece of 5/8" Rod 16" Long
2 Pieces of 2" x ¼" Flat 8" Long
1 Piece of old Flywheel with Teeth



Courtesy of Leedey
Vocational Agriculture Department

Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

Windmill

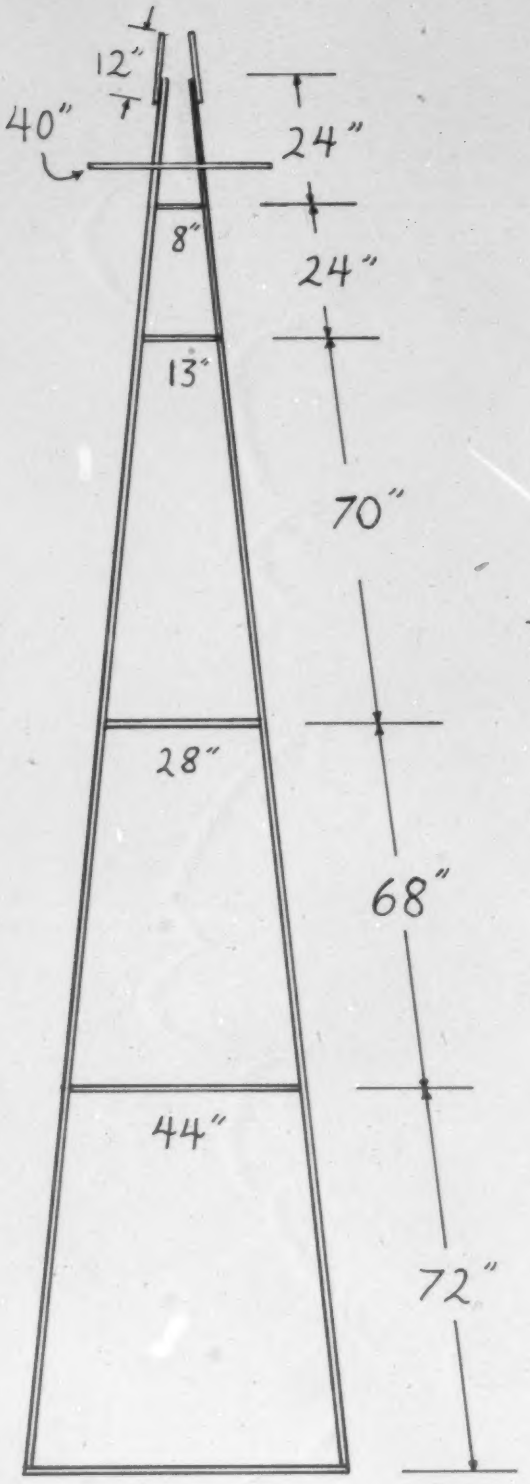
Scale: 3/8"=1'

BILL OF MATERIAL

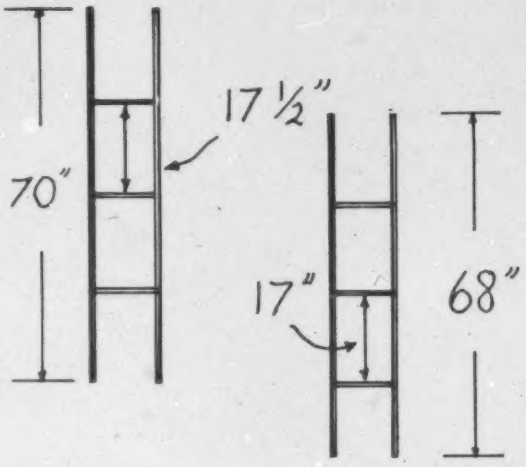
4 Pieces of 3" Pipe	21'9" Long
4 Pieces of 3" Pipe	60" Long
3 Pieces of 3" Pipe	44" Long
3 Pieces of 3" Pipe	28" Long
3 Pieces of 3" Pipe	13" Long
3 Pieces of 3" Pipe	8" Long
2 Pieces of 2" X 2" Angle Iron	30" Long
2 Pieces of 2" X 2" Angle Iron	40" Long

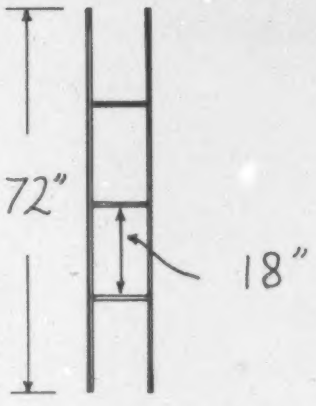
Optional Ladder

2 Pieces of 1" Pipe	17'7" Long
12 Pieces of 1" Pipe	16" Long

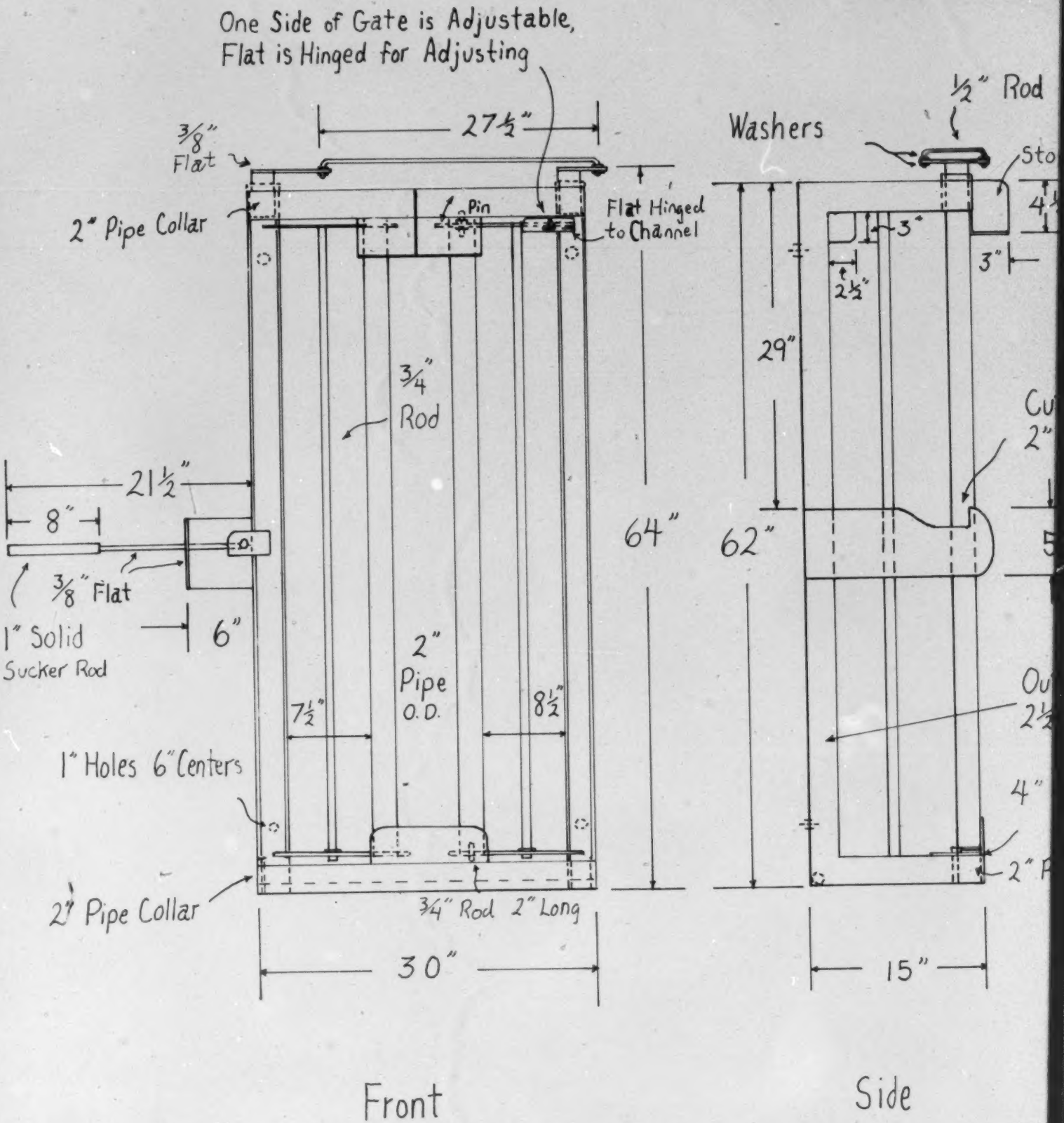


Optional Ladder





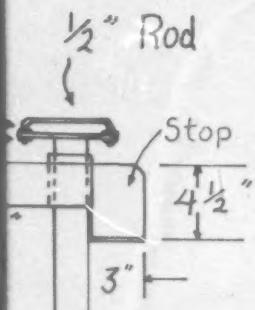
3 Sections – 1" Pipe

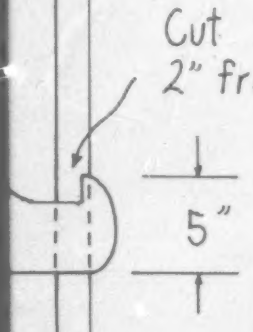


Courtesy of Davis
Vocational Agriculture Department

Headgate

Scale: 3/32"=1"





BILL OF MATERIAL

2	Pieces of 2" O.D. Pipe 54" Long
2	Pieces of 2" O.D. Pipe 62" Long
4	Pieces of 2" Pipe Collar 2½" Long
2	Pieces of ⅝" Rod 56" Long
4	Pieces of [illegible]d" Flat 3½" x 12"
2	Pieces of [illegible]" Rod 57" Long
1	Piece of ½" Rod 27½" Long
2	Pieces of 3/8" x 2½" Angle Iron 62" Long
2	Pieces of 3/8" x 2½" Angle Iron 30" Long
4	Pieces of 3/8" x 2½" Angle Iron 10" Long
2	Pieces of 3/8" x 3½" Flat 8" Long
1	Piece of 3/8" x 3" Flat 30" Long
1	Piece of 1" Sucker Rod End 8" Long
1	Piece of 3/8" x 2" Flat 13½" Long
1	Piece of 2" Channel 5" Long
1	Piece of 1" Channel 5" Long
2	Pieces of 3/8" Flat 2½" x 3"

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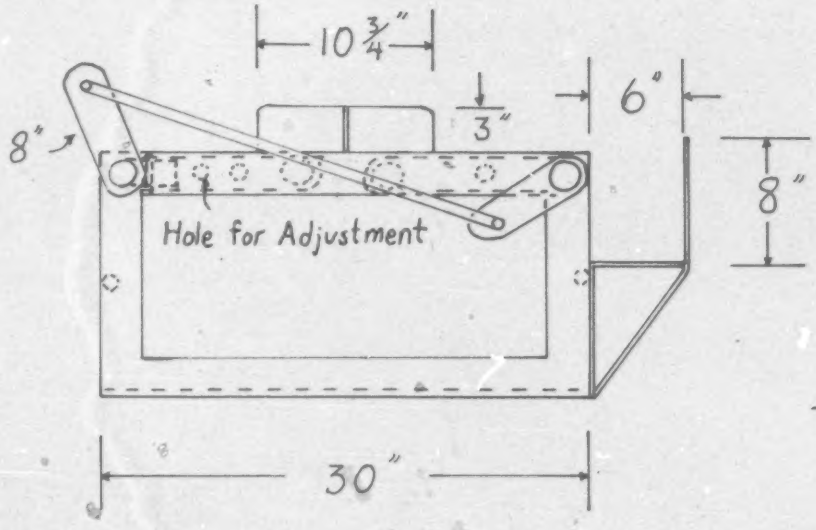
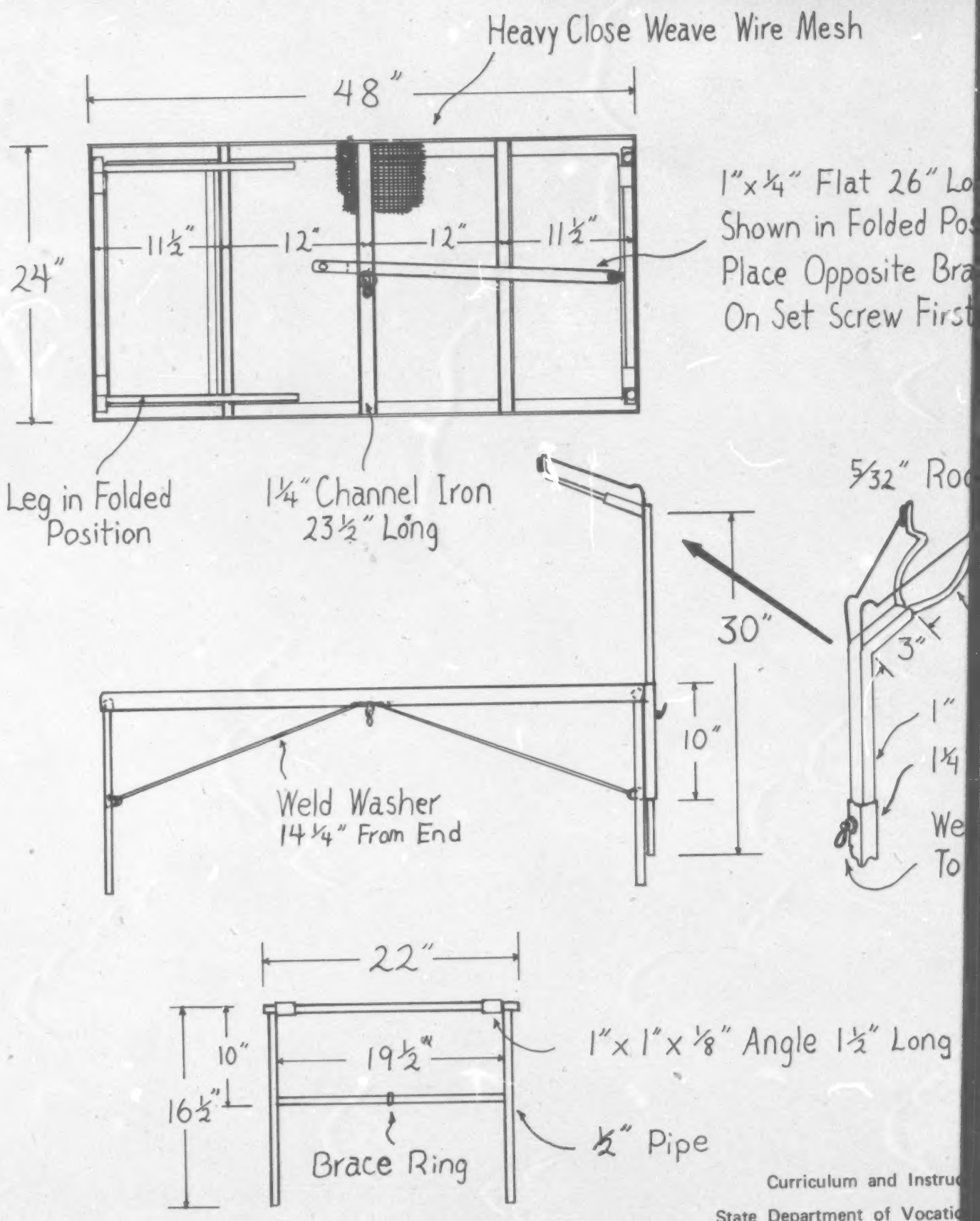
State Department of Vocational and Technical Education
Stillwater, Oklahoma



Top



Curriculum and Instruc
State Department of Vocatio
Stillwater,

Folding Sheep Blocking Stand

Scale:3/32"=1'

6" Long
ed Position
e Brace
First

Rod

Chain Link

3/8" Rod

3"

1" Square Tubing

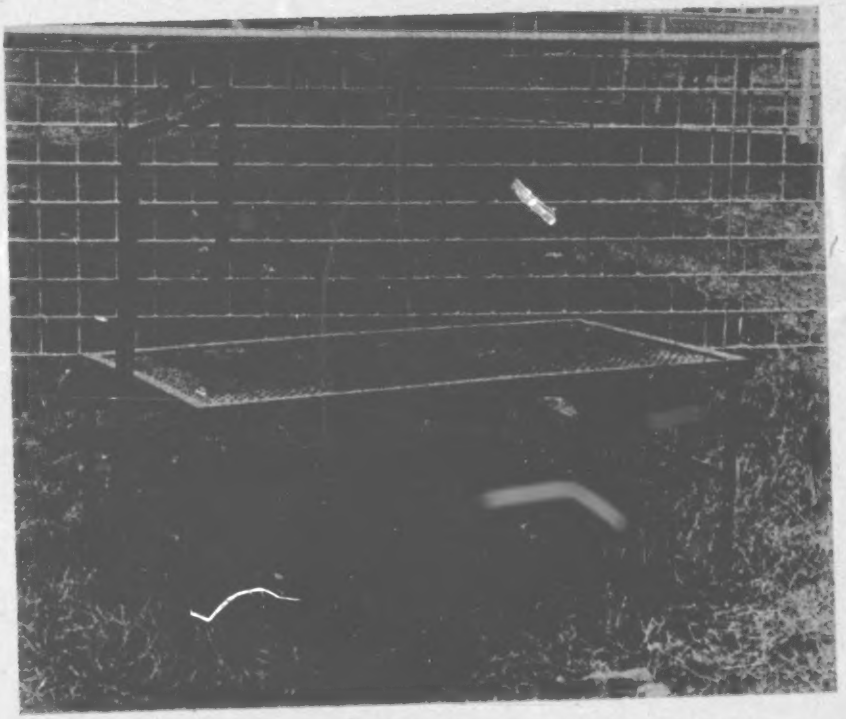
1¼" Square Tubing

Weld Handle
To Set Screw

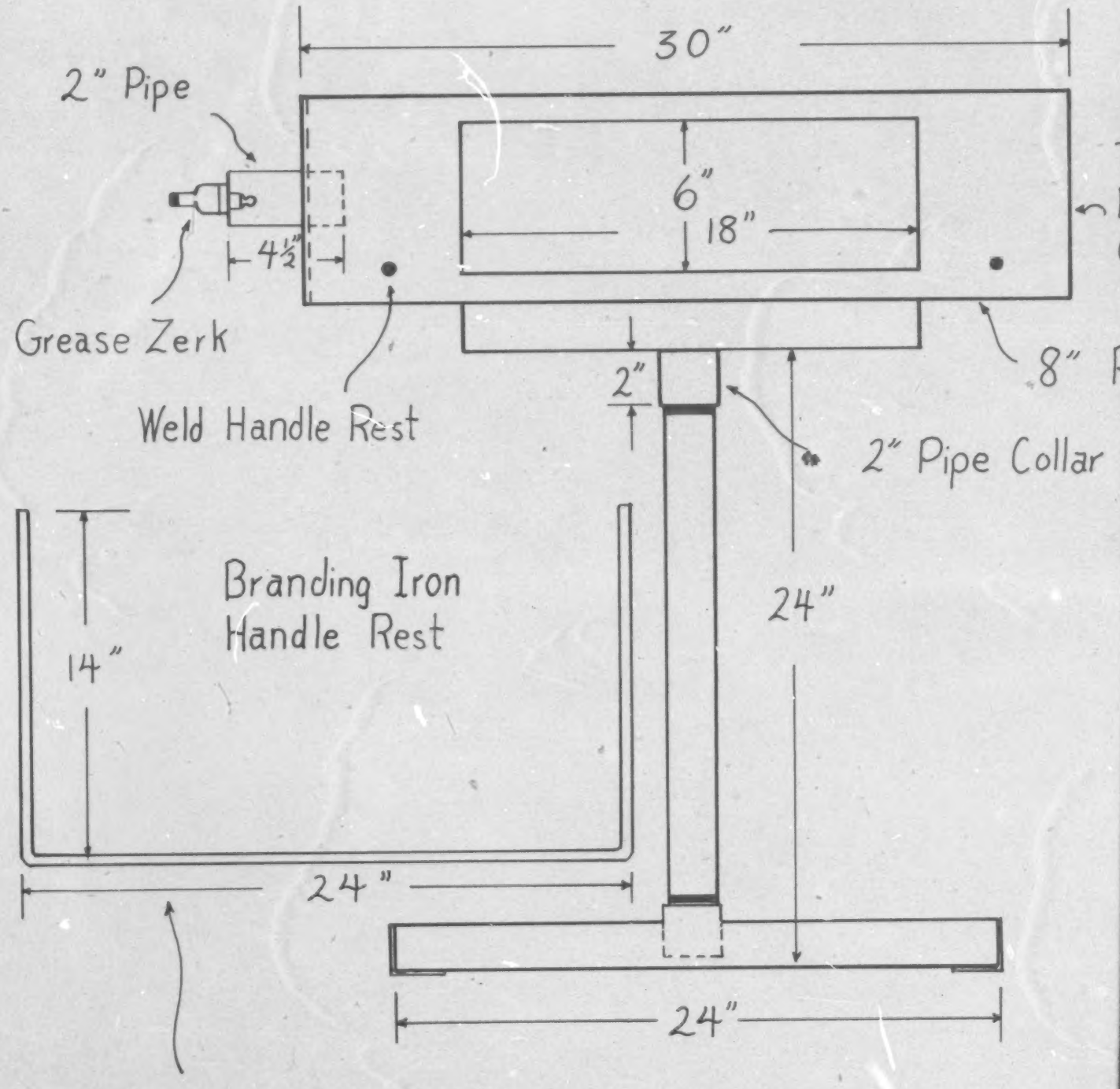
Long

BILL OF MATERIAL

2 Pieces of 1½" x 1½" Angle Iron 48" Long
1 Piece of Heavy Mesh Wire 24" x 48"
1 Piece of 1 1/4" Square Tubing 10" Long
1 Piece of 1" Square Tubing 33" Long
2 Pieces of 3/8" Rod 8" Long
4 Pieces of 1" x 1" x 1/8" Angle Iron 1½" Long
4 Pieces of ½" Pipe 16½" Long
2 Pieces of ½" Pipe 19½" Long
2 Pieces of ½" Pipe 22" Long
3 Pieces of 1 1/4" Channel Iron 23½" Long
2 Pieces of 1/4" x 1" Flat Metal 26" Long
2 Pieces of 5/32" Rod 10" Long
1 Washer, 2 Set Screws, and 2 Brace Rings



Instructional Materials Center
Vocational and Technical Education
lwater, Oklahoma



Courtesy of Atoka
Vocational Agriculture Department

Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

Branding Iron Heater

03:25

Scale: 3/16"=1"

This End Open

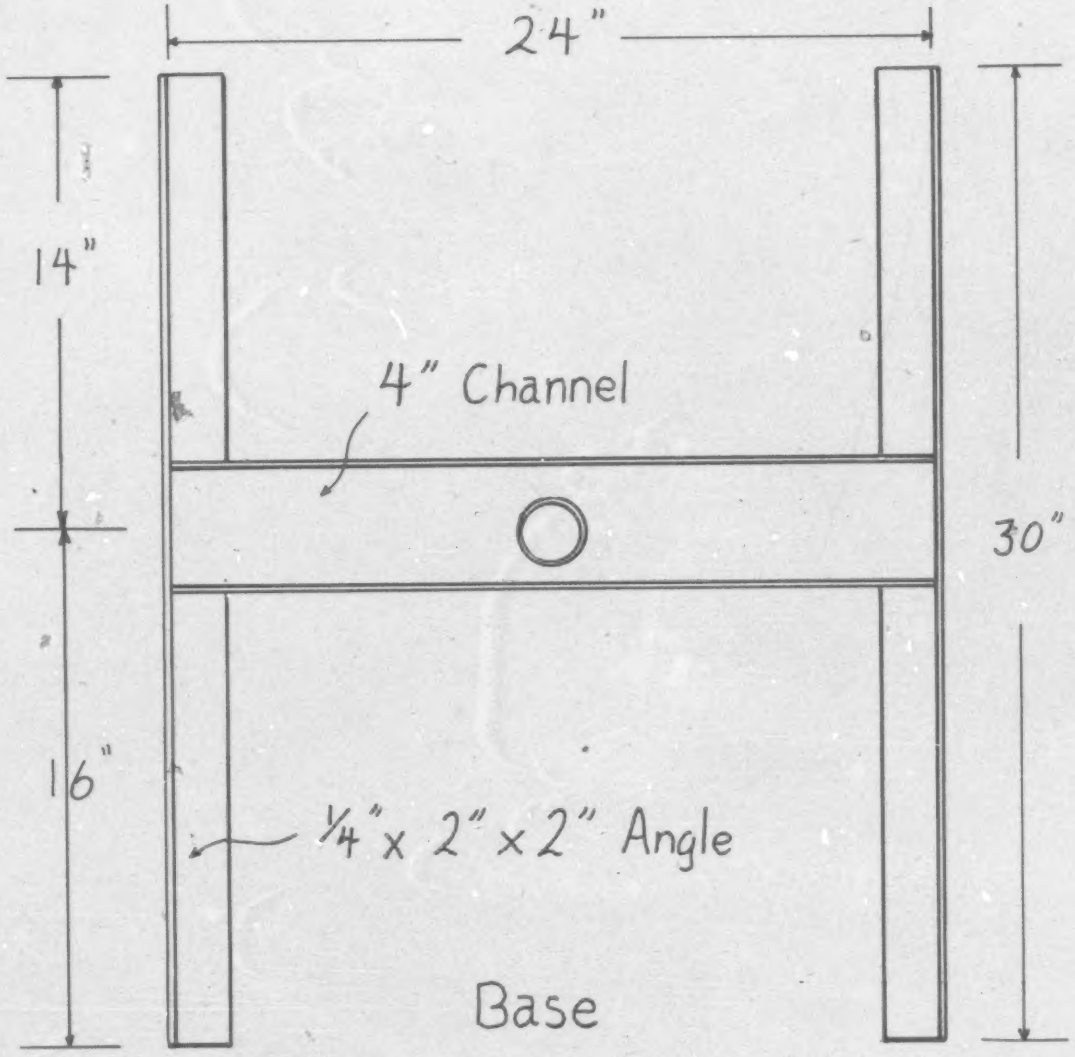
8" Pipe

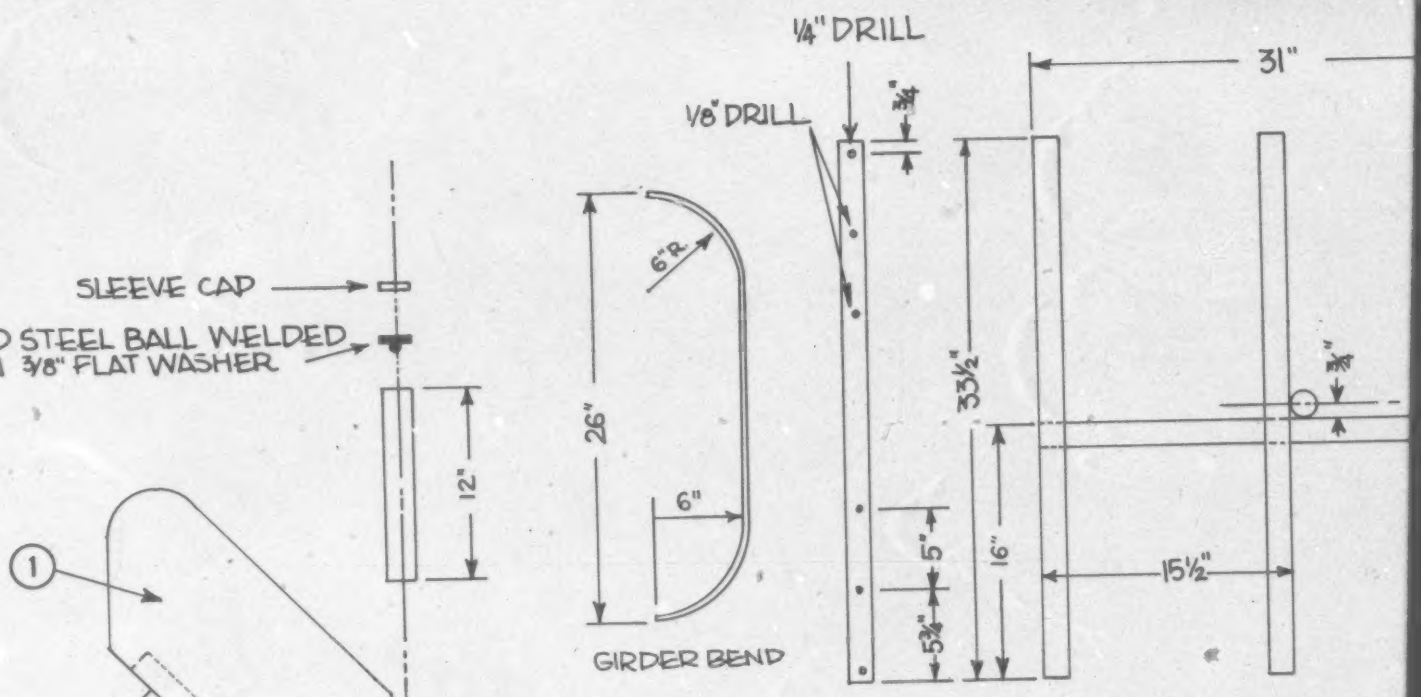
ollar

to Front

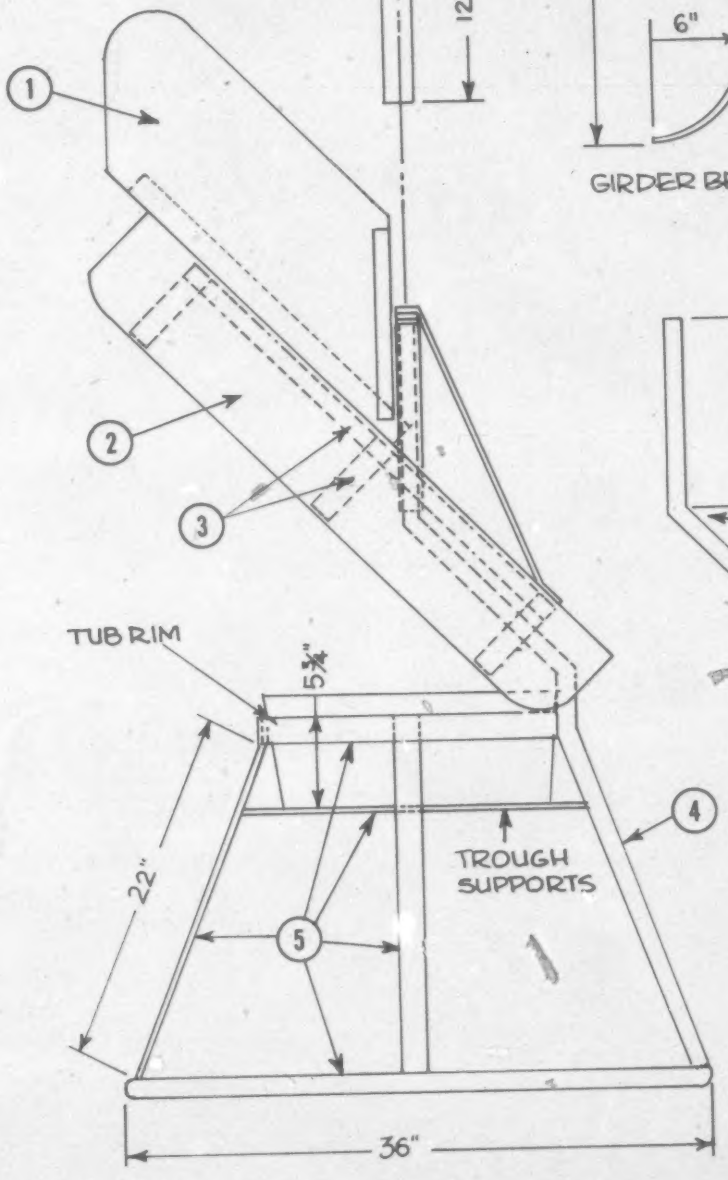
BILL OF MATERIAL

2 Pieces of 2" Pipe Collar 2" Long
1 Piece of 2" Threaded Pipe 23" Long
1 Piece of 2" Pipe 4 1/2" Long
1 Piece of 8" Pipe 30" Long
1 Piece of 1/8" Flat Metal 8" Diameter
1 Piece of 4" Channel 18" Long
1 Piece of 4" Channel 24" Long
2 Pieces of 1/4" X 2" X 2" Angle 30" Long
1 Piece of 1/2" or 5/8" Rod 52" Long
1 Piece of 1/2" Pipe to Hose Gas Connecter
1 Piece of 1/2" X 1/4" Reducer
1 Piece of 1/4" X 1/8" Reducer
1 Grease Zerk with Spring and Ball Removed

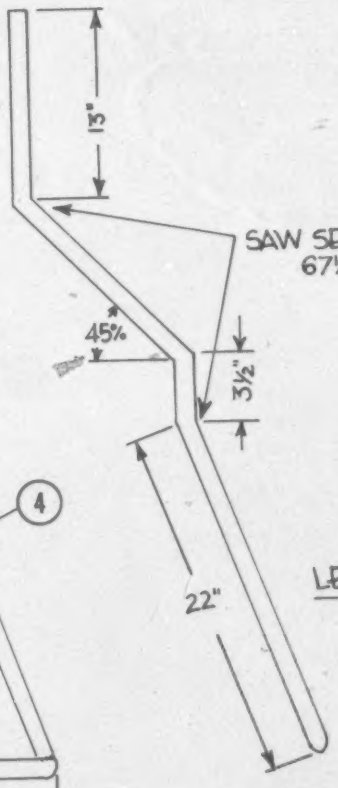


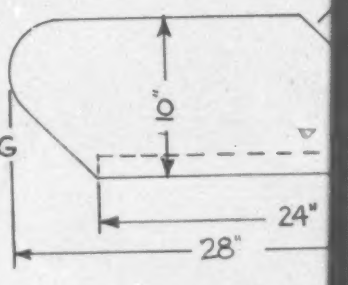


ROOF SUPPORT & GIRDER ASSEMBLY



SIDE VIEW



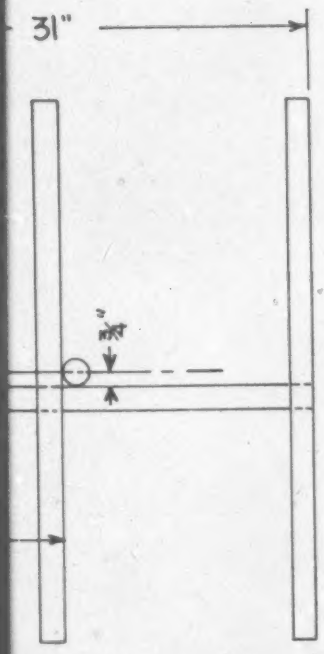


VANE & BASE

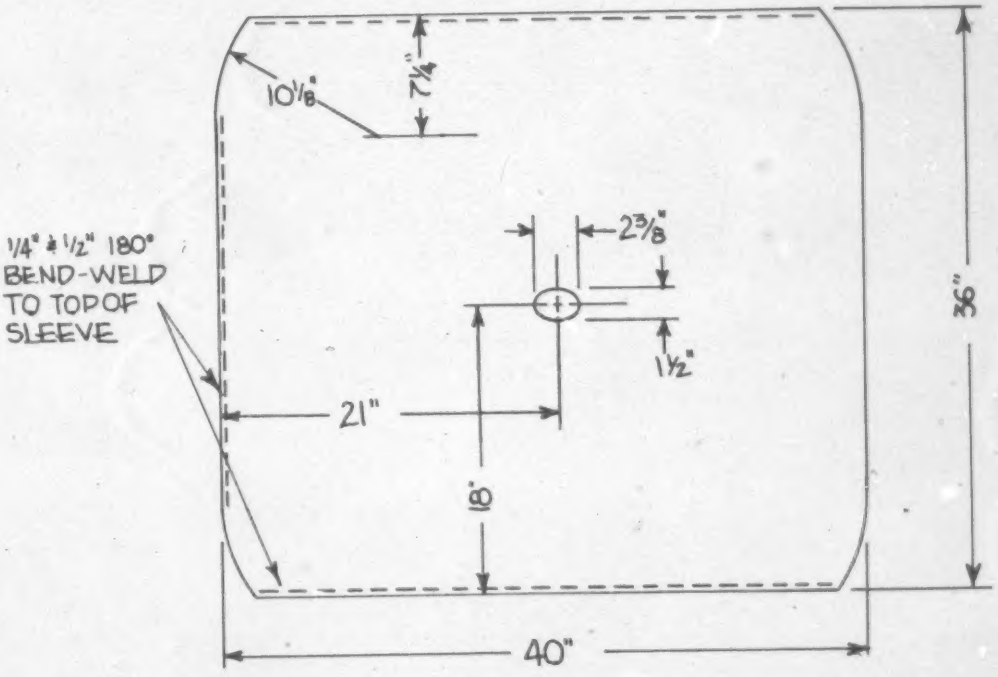
LEG & ROOF SUPPORT NO. 4

NOTE: USE LEVEL TO INSURE CENTERPOST PLUMB

NO. 5 - PIPE, 1/2" STRUCTURAL - 115" LONG - BEND METAL 1/4" X 1 1/2" - 58 1/2" LONG, BEND COLD 18 1/2" I.D. WELD LEG & ROOF SUPPORT AND TROUGH SU TO FIT.

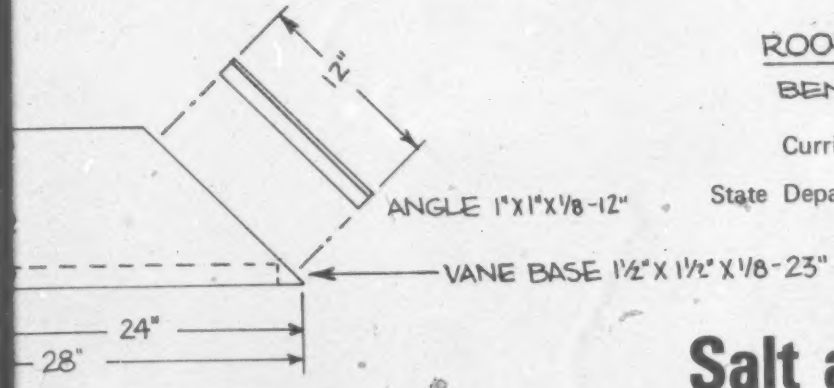


SEMBLY NO. 3



ROOF DETAIL NO. 2

BEND TO FIT GIRDER BEND.



NE & BASE NO. 1

RT NO. 4

L TO INSURE
OST PLUMB.

ONG-BEND TO 36" I.D.-TUB RIM, FLAT
D 18½" I.D-LEGS 3 FLAT ¼"x1½"-22"LONG,
ROUGH SUPPORTS (2) ¼"x1½"; MEASURE

Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

Salt and Mineral Feeder

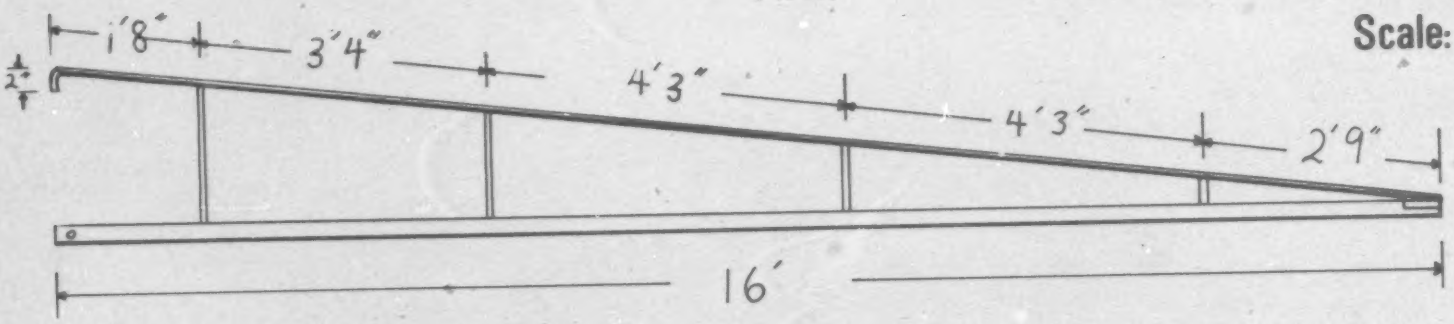
Scale: 3/32"=1"

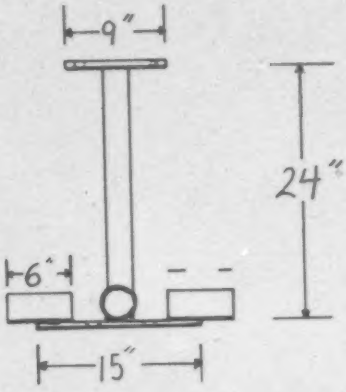
BILL OF MATERIALS

1 - 1/2" Pipe 10' long
1 - 1" Pipe 5' long
1 - 1 1/4" Pipe 1' long
24' Flat metal 1/4" X 1 1/2"
3' Angle 1 1/2" X 1 1/2" X 3/16"
2' Angle 1 1/2" X 1 1/2" X 1/8"
1' Angle 1" X 1" X 1/8"
1 pc. Flat metal 1/4" X 1" - 2' long
1 pc. 22 ga. Galvanized sheet metal 36" X 40"
1 pc. 22 ga. Galvanized sheet metal 20'. X 28"
1 - 3/8" Flat washer
1 - 1/2" Ball Bearing
12 - 1/4" X 1/2" Sheet metal bolts
12 - Pop rivets, 1/8" X 3/8"
1 - Rubber Tub, 50 lb. capacity
3 - 1/4" X 1" Sheet metal bolts

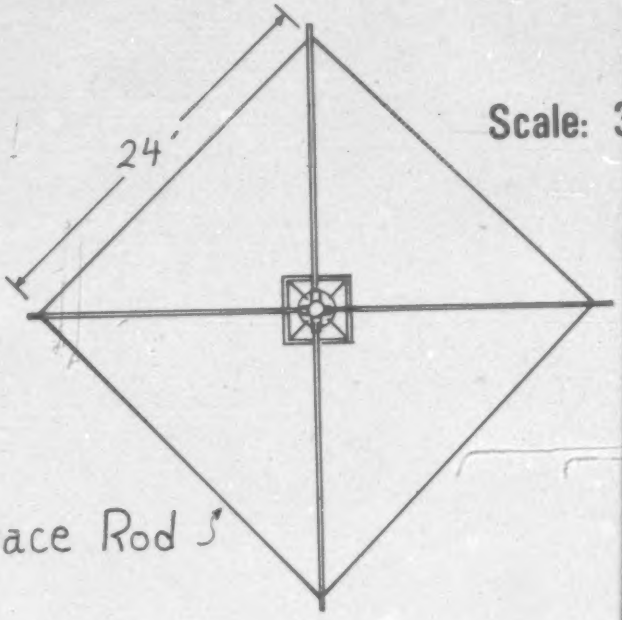
Arm

Scale: 1

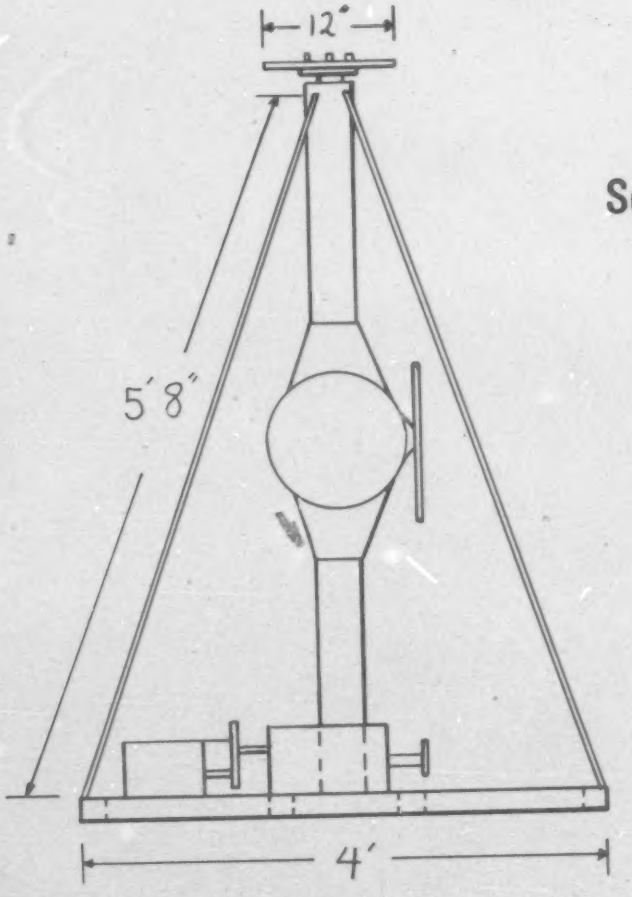




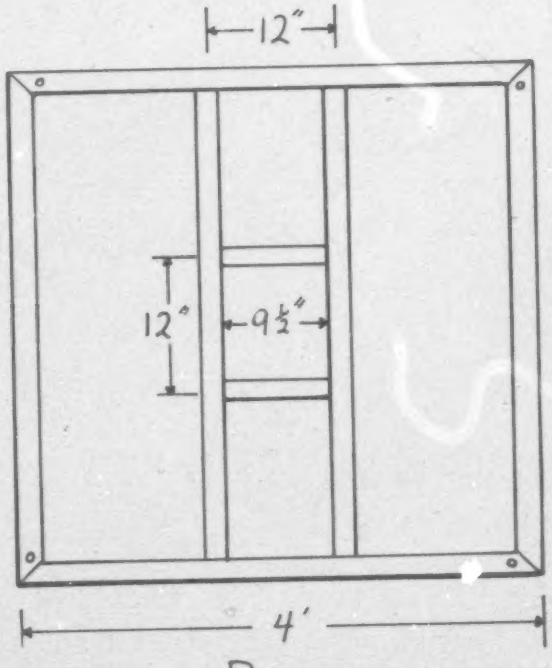
Scale: 3



Brace Rod 5



Scale: 3/4"=1'



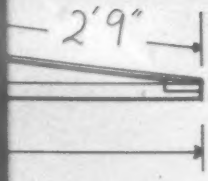
Base

Courtesy of Dewey
ocational Agriculture Department

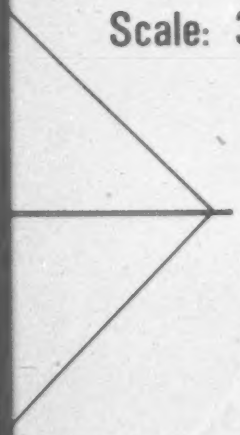
03:27

Scale: 1/2"=1'

Horse Walker

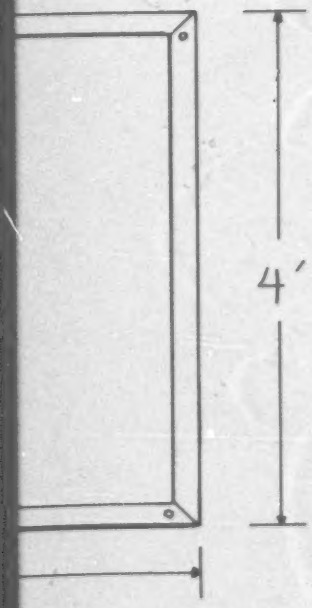


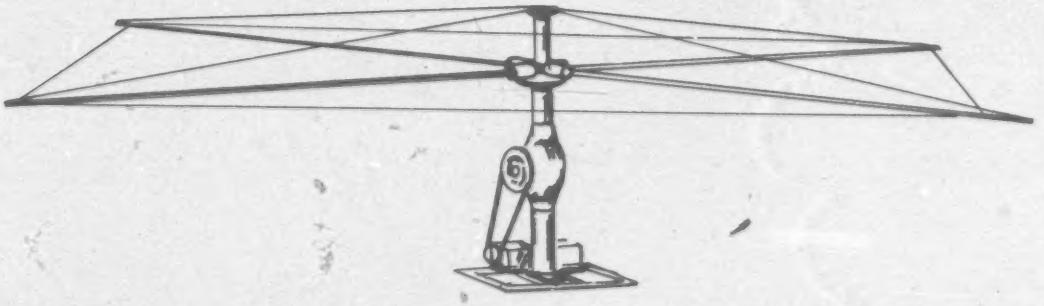
Scale: 3/32"=1'



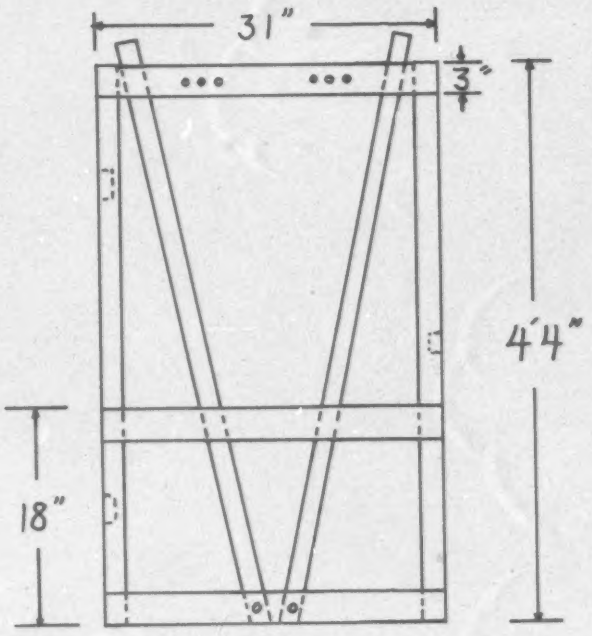
BILL OF MATERIALS
1 1/3 H.P. Motor
1 4 Speed Transmission
4 Pieces of 5/8" Rod 3' 6 1/2" Long
4 Pieces of 2" Pipe 16' Long
4 Pieces of 5/8" Rod 16'2" Long
4 Pieces of 1/2" Rod 24' Long
1 Piece of 1/4" Steel 9" in Diameter
1 Piece of 2" Pipe 2' Long
4 Pieces of 2 1/2" Pipe 6" Long
2 Pieces of 1/4" Steel 15" in Diameter
4 Pieces of 1/2" Rod 5'8" Long
2 Pieces of 2" Pipe 9 1/2" Long
2 Pieces of 2" Pipe 3'6" Long
4 Pieces of 2" Pipe 4' Long

Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

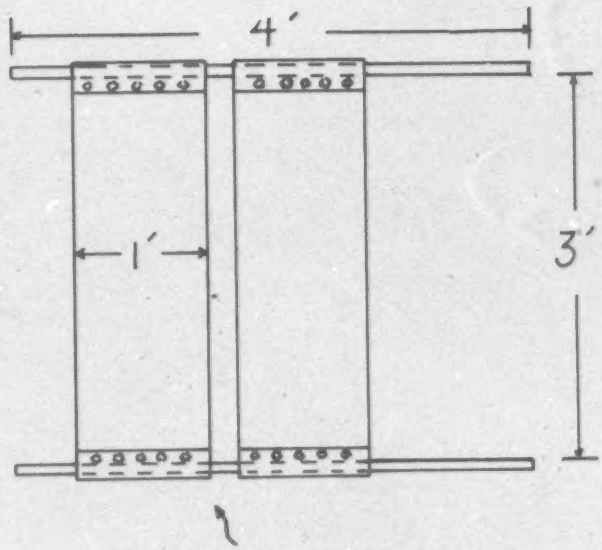




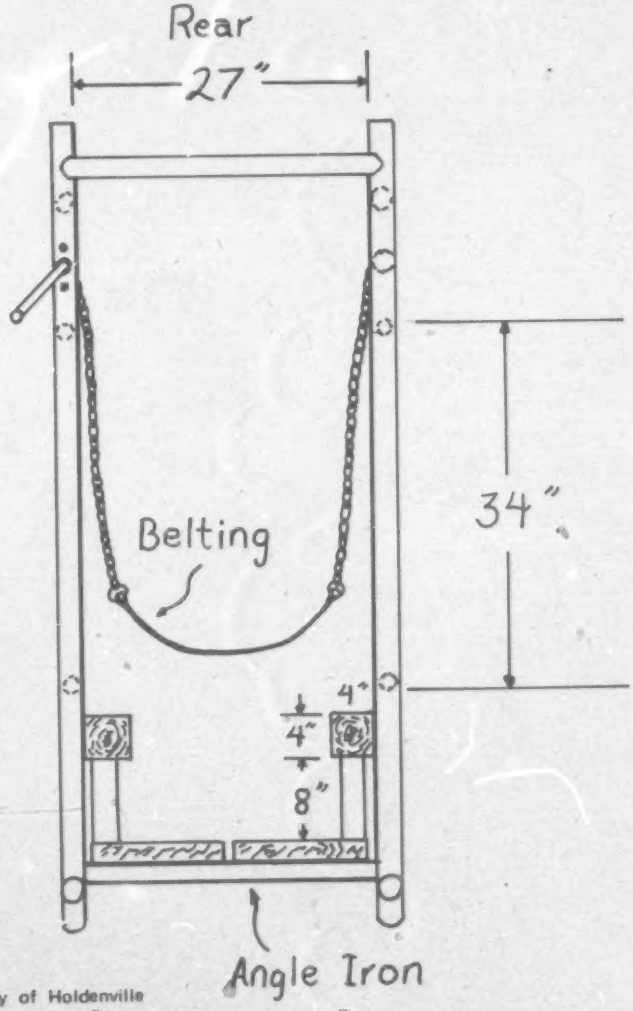
Bob Rea



Head Gate



Sliding Belt



Angle Iron

Both Side Doors
Open in Front

Treated Lumber

Pipe Sled

Courtesy of Holdenville
Vocational Agriculture Department

Hoof Trimming Chute

Scale: 3/4"=1'

3'

BILL OF MATERIAL

2 Pieces of No. 4 Chain 3' Long
2 Pieces of 4" X 4" Treated Lumber 7' Long
2 Pieces of 2" X 12" Treated Lumber 6' Long
2 Pieces of 1' Wide Belting 3 1/2' Long
6 Pieces of 3" X 1/4" Plate Steel 31" Long
63' of 2" Pipe
58" of 2" X 2" Angle Iron
18 Ft. 8" of 1 1/4" Pipe
74' of 3/4" Sucker Rod

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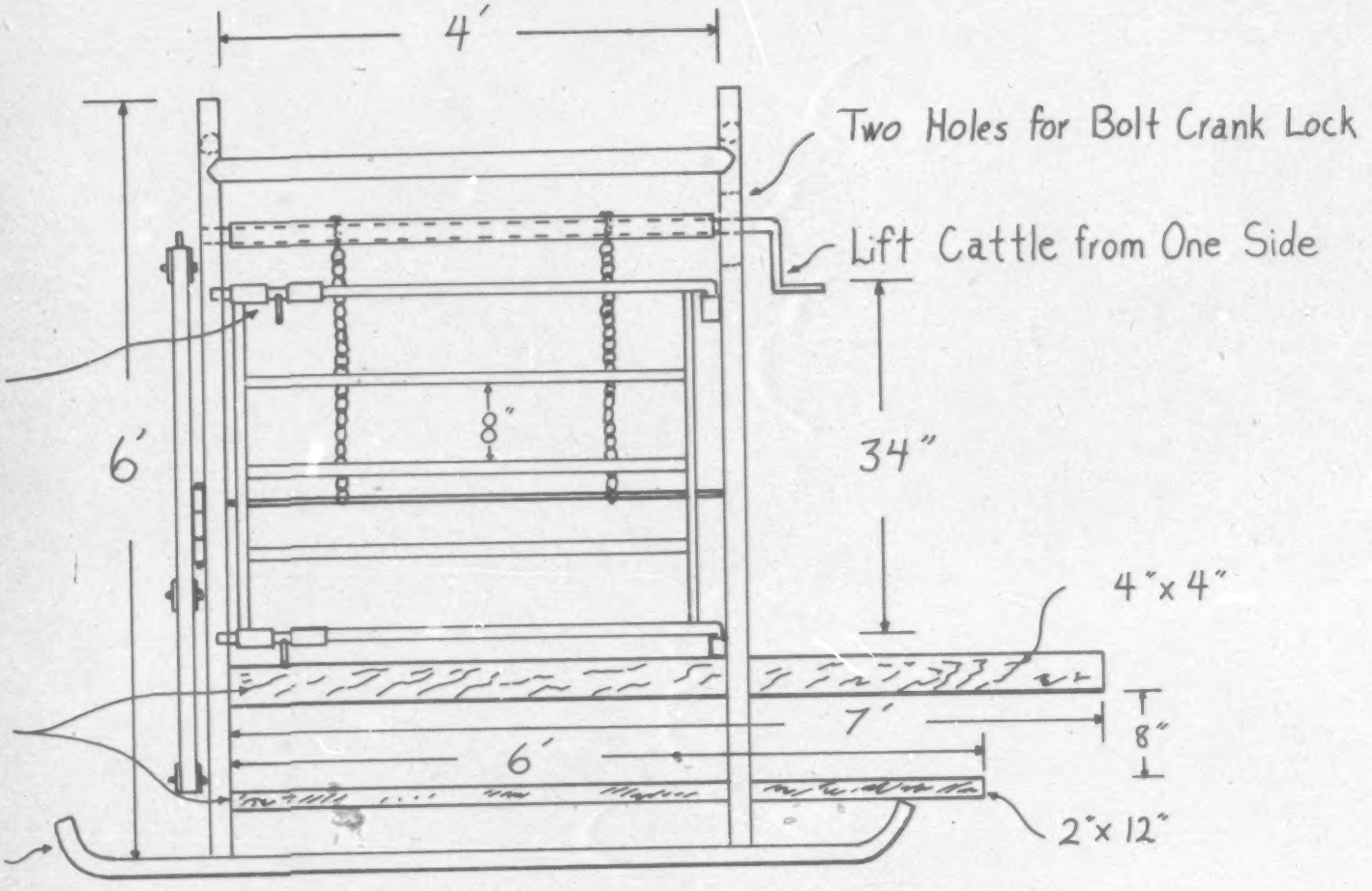
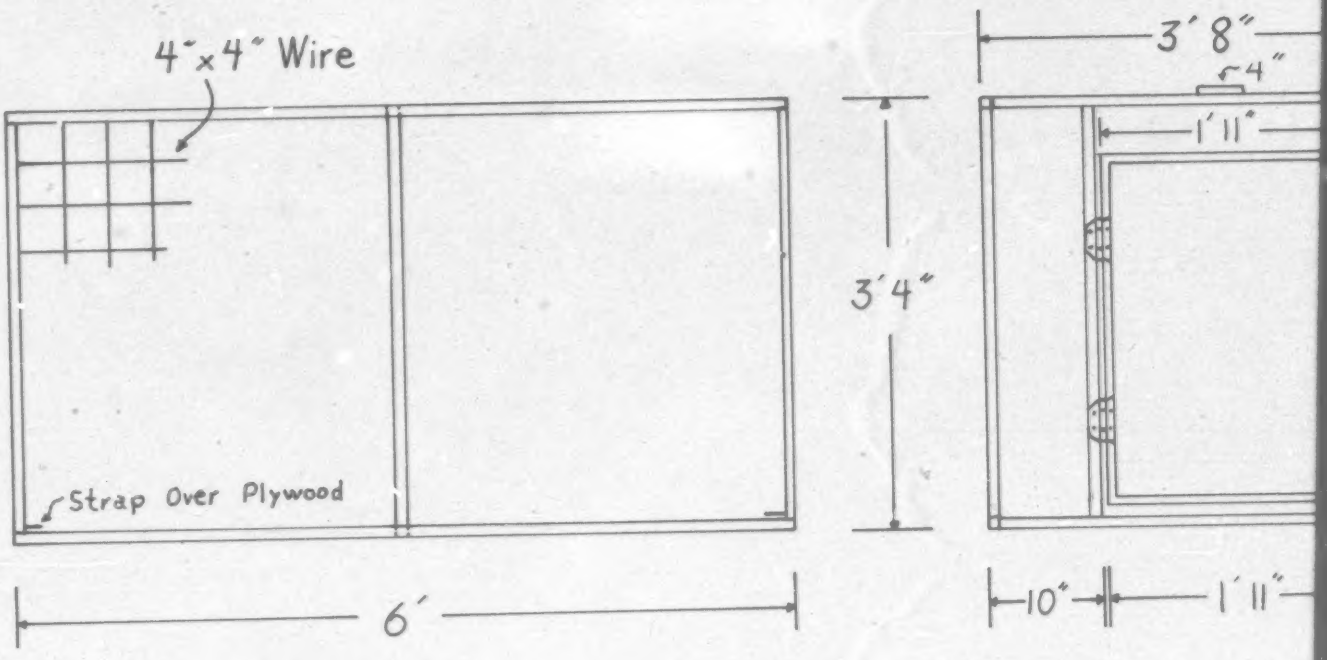
Stillwater, Oklahoma



Side

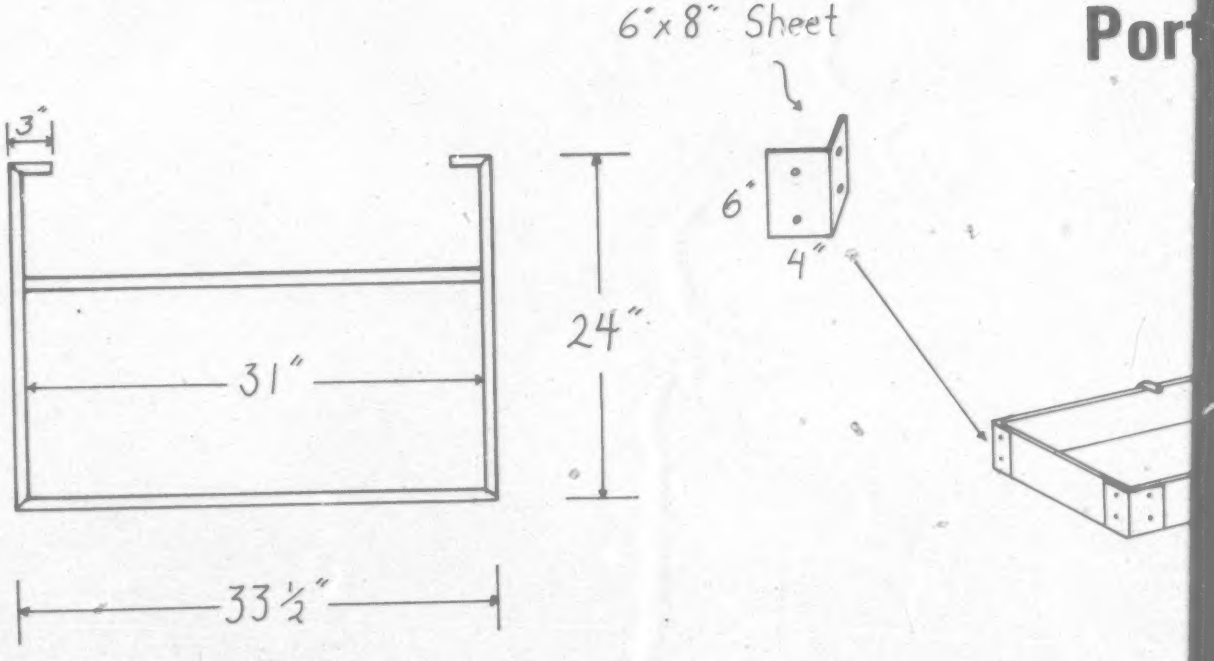
Bob Rea

Slip-In Small Livestock Rack



Courtesy of Erick
Vocational Agriculture Department

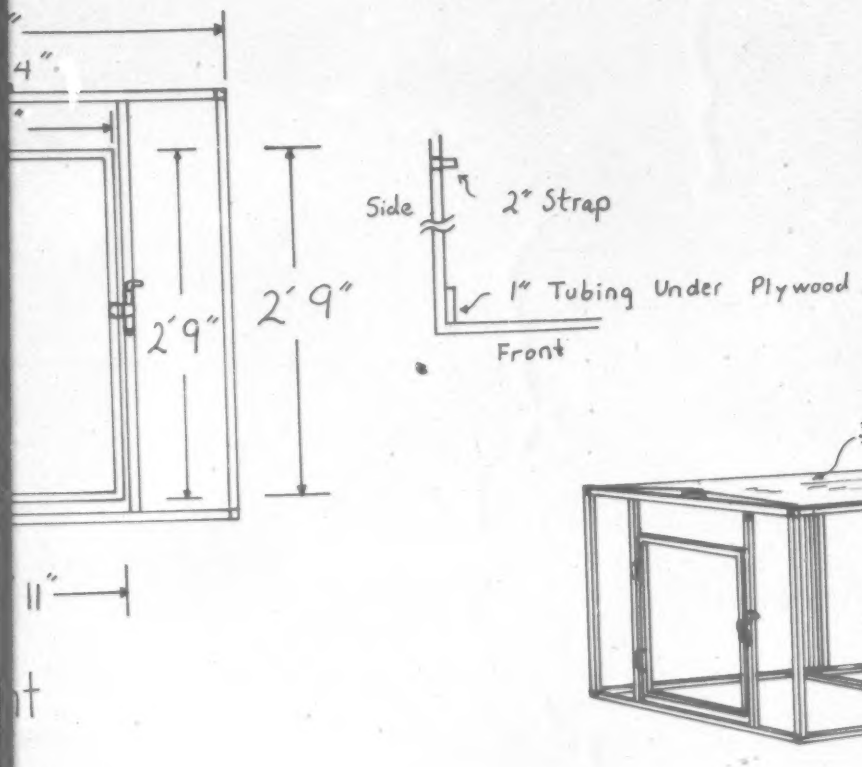
Port



Courtesy of Adair
Vocational Agriculture Department

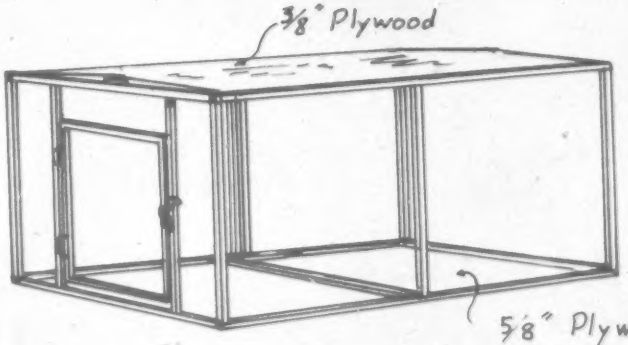
03:29

Scale: 3/4"= 1'



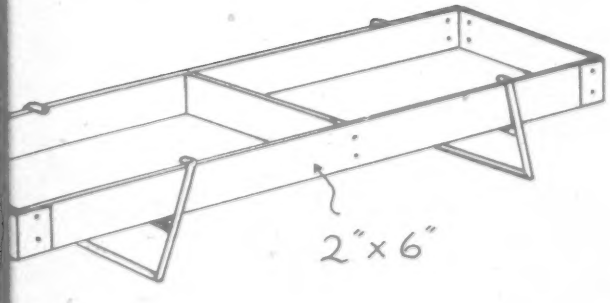
BILL OF MATERIAL

8 Pieces of 1" Square Tubing 3' 2" Long
6 Pieces of 1" Square Tubing 3' 6" Long
4 Pieces of 1" Square Tubing 6' Long
2 Pieces of 1" Square Tubing 2' 7" Long
2 Pieces of 1" Square Tubing 1' 11" Long
3 Pieces of 1" Square Tubing 4" Long
3 Pieces of 1/2 Black Pipe 1" Long
1 Piece of 1" x 3/16" Strap 3" Long
10 1/4 Carriage Bolts 2" Long
3 1/4" Carriage Bolts 3" Long
1 Piece of 3/8" Plywood 6' x 3'8"
1 Piece of 5/8" Plywood 6' x 3'8"
2 Pieces of 4" Square Wire 6' x 3'4"
2 Pieces of 4" Square Wire 3'4" x 3' x 8"



ortable Feed Trough

Scale: 1"=1'



BILL OF MATERIAL

2 Pieces of 2" x 6" Boards 14' Long
5 Pieces of 1" x 8" Shiplap 10' Long
16 Carriage Bolts 1/4" x 2"
4 Pieces of Sheet Iron 1/8" x 6" x 8"
1 Piece of 1 1/4" Pipe 14' Long
1 Piece of 1" Pipe 5 1/2" Long

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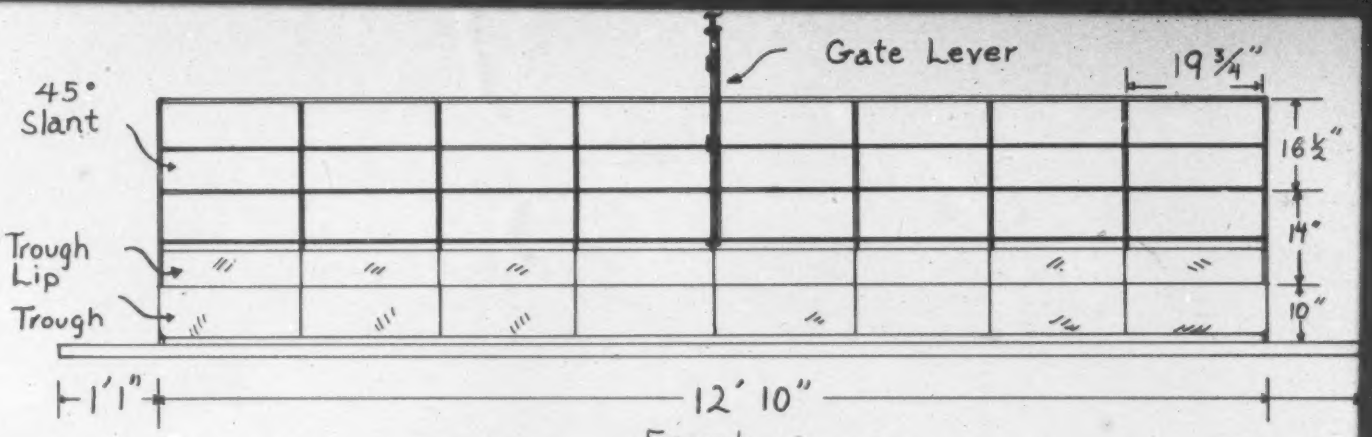
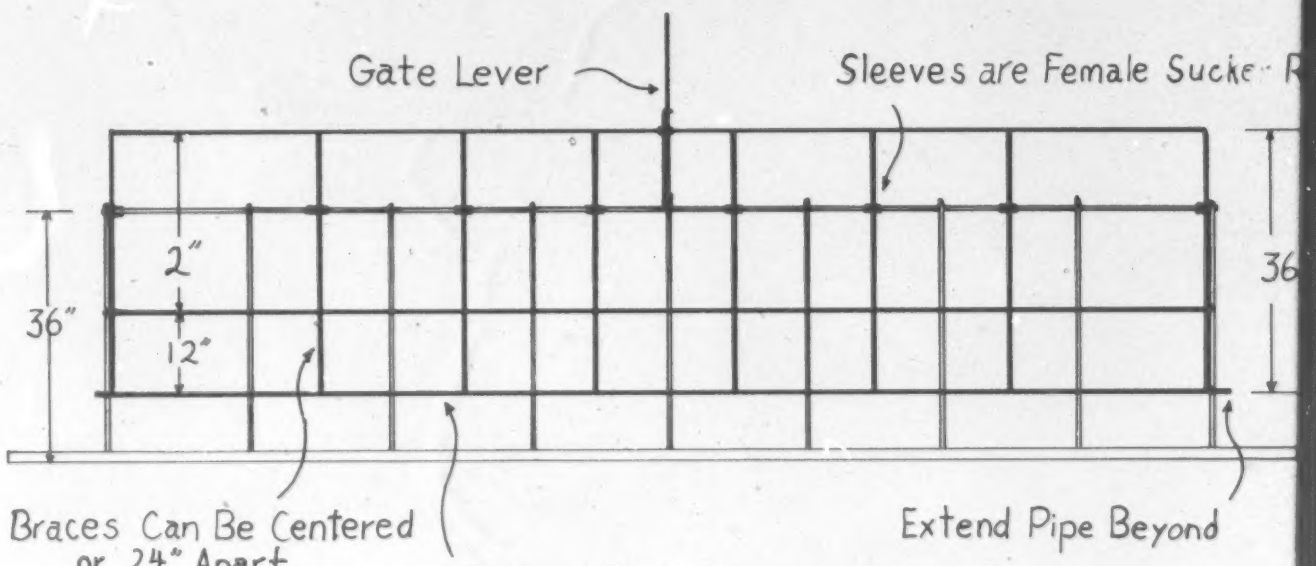
State Department of Vocational and Technical Education
Stillwater, Oklahoma

Bob Rea



Front



Braces Can Be Centered or 24" Apart

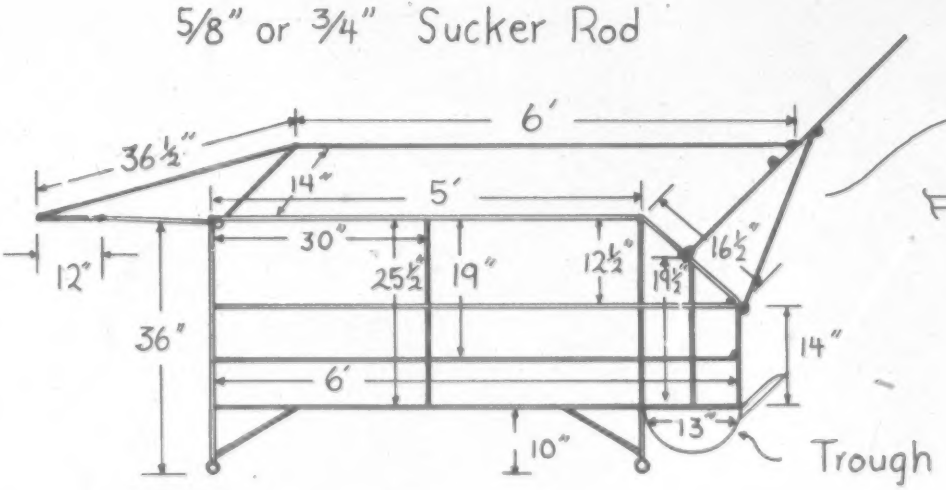
Gate in Dark Line

Extend Pipe Beyond

Back With Gate Closed

Gate L
Clos

5/8" or 3/4" Sucker Rod



Side

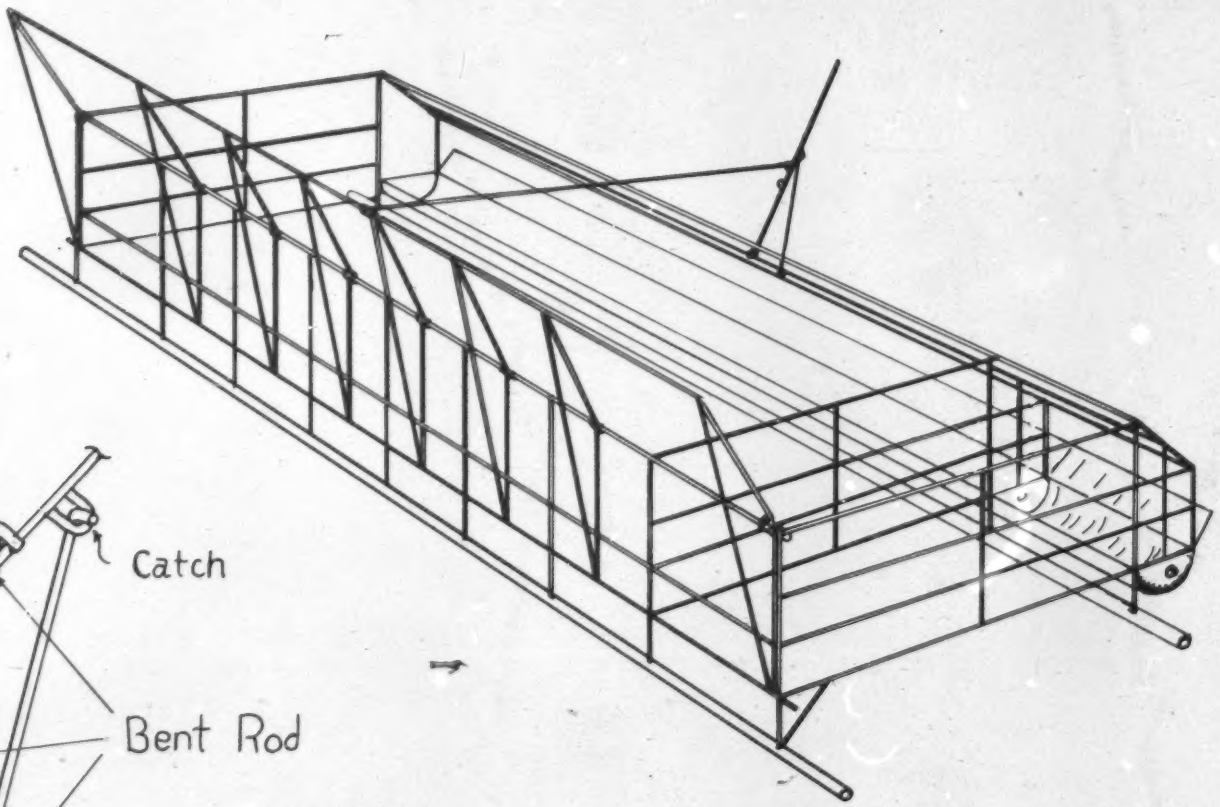
Courtesy of Ponca City Vocational Agriculture Department

Sow Feeder

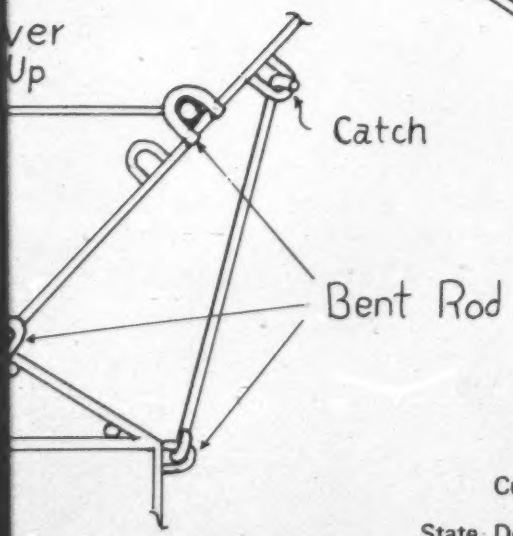
Scale: 1/2"=1'

BILL OF MATERIAL

550 Ft. of 5/8" or 3/4" Sucker Rod
30 Ft. of 2" Pipe
12 Ft. 10 In. of 13" Troughs (either pipe or hot water heater liners)



Over-all View



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State Department of Vocational and Technical Education
Stillwater, Oklahoma

Bob Ritz

Drag Ha

Scale: 3/4

BILL OF MATERIAL

1 PIECE OF 2½" PIPE 14" LONG

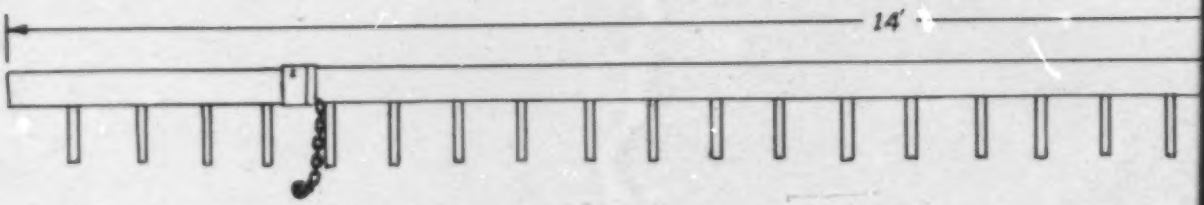
2 PIECES OF 4" PIPE 4" LONG

28 PIECES OF SUCKER ROD 10" LONG

2 PIECES OF FLAT IRON ½"x3"x24"

2 PIECES OF ¼ CHAIN 3' LONG & HOOKS

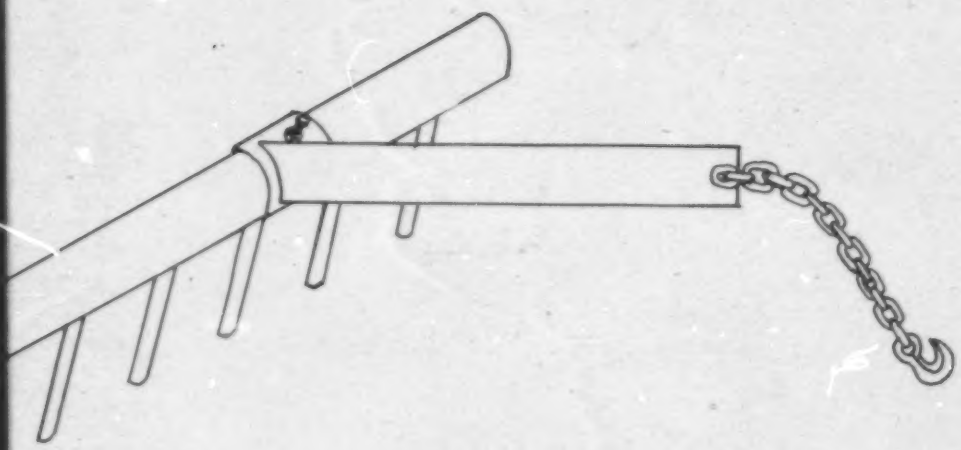
4 - ½"x2" SET SCREWS

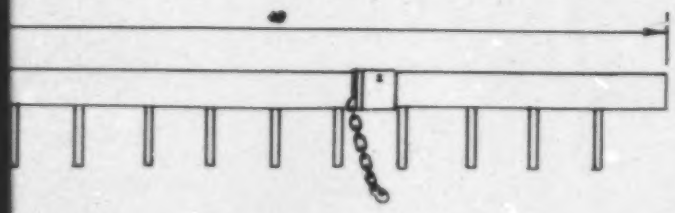


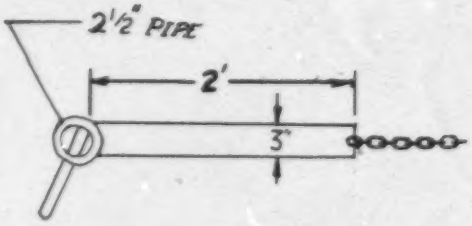
Courtesy of Jet-Nash
Vocational Agriculture Department

Harrow

3/4" = 1'







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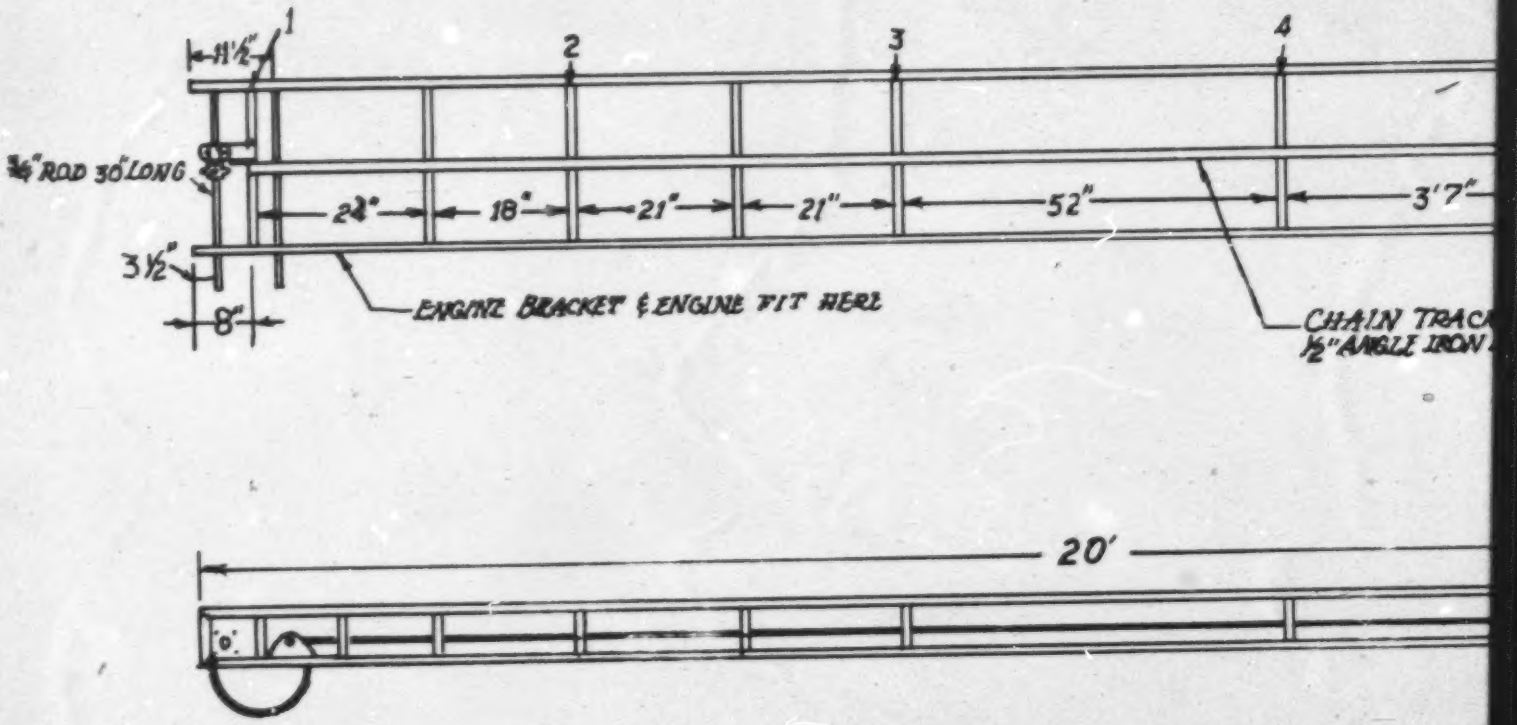
State Department of Vocational and Technical Education
Stillwater, Oklahoma

DWN BY: JOHN McEACHERN

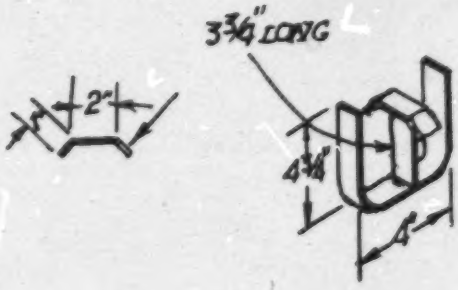
Bale Eleva

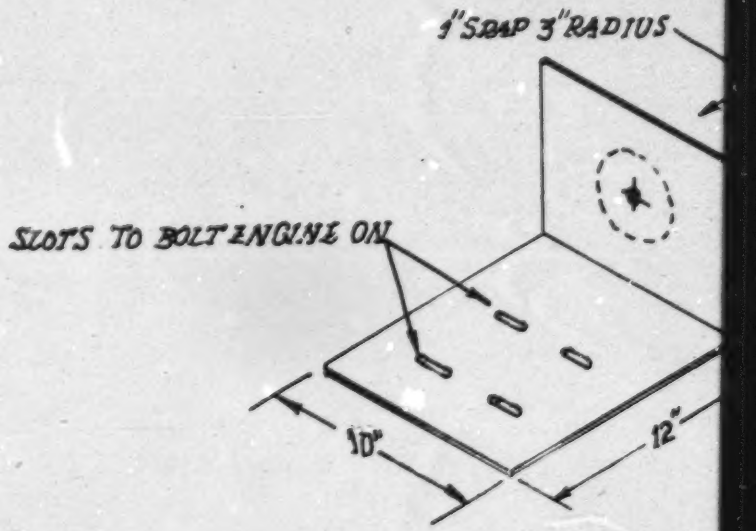
Scale: ½" = 1'



THIS PIECE FITS ON THE BOTTOM OF NUMBERED CROSS BARS FOR A CHAIN RUN AND IS MADE OF 1" STRAP IRON

ENGINE BRACKET
ON & OFF ELEVATOR
AND TURNING TR

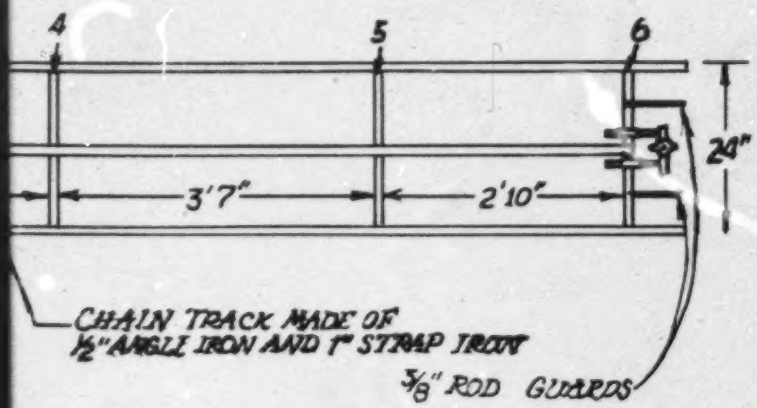




Courtesy of Jet-Nash
Vocational Agriculture Department

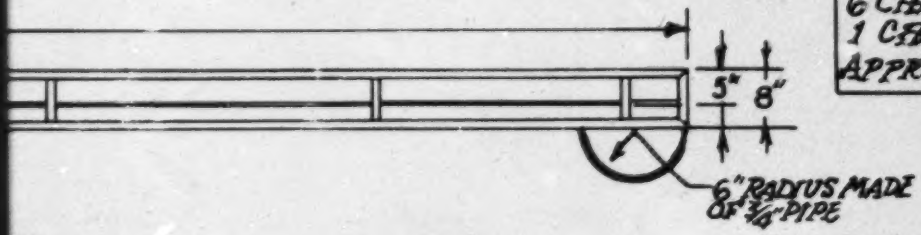
Bale Elevator

Scale: ½" = 1'



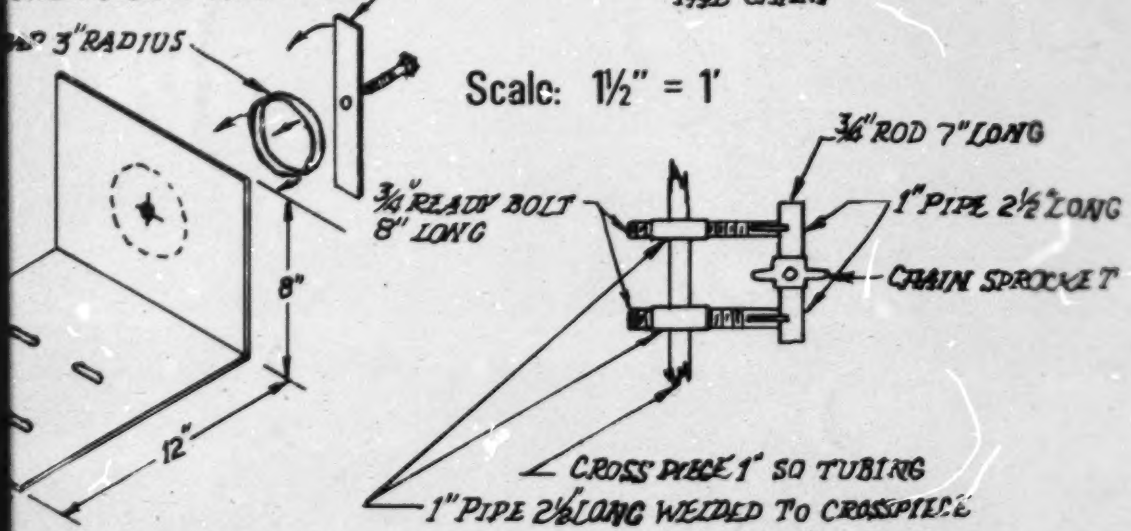
BILL OF MATERIAL

4 PIECES OF 1" SQ. TUBING 20' LONG
8 PIECES OF 1" SQ. TUBING 22" LONG
19 PIECES OF 1" SQ TUBING 6" LONG
2 PIECES OF 1" SQ. TUBING 8" LONG
2 PIECES OF ½" ANGLE IRON 19' LONG
1 PIECE OF 1" STRAP IRON 9' LONG
1 PIECE OF 1" STRAP IRON 8" LONG
1 PIECE OF 1" STRAP IRON 18" LONG
1 PIECE OF FLAT IRON 8"x12"x⅛"
1 PIECE OF FLAT IRON 10"x12"x⅛"
4 PIECES OF 1" PIPE 2½" LONG
2 PIECES OF ¾" READY BOLT 8" LONG
1 PIECE OF ¾" ROD 7" LONG
2 PIECES OF ¾" PIPE 19" LONG
6 CHAIN RUNS & 2 CHAIN SPROCKETS
1 CHAIN TIGHTNER
APPROX 37'6" OF CHAIN



ENGINE BRACKET CAN BE SLIPPED ON & OFF ELEVATOR BY LOOSENING BOLT AND TURNING THIS PIECE

THESE PIECES GO TOGETHER TO FORM A DEVICE TO TIGHTEN & LOOSEN THE CHAIN



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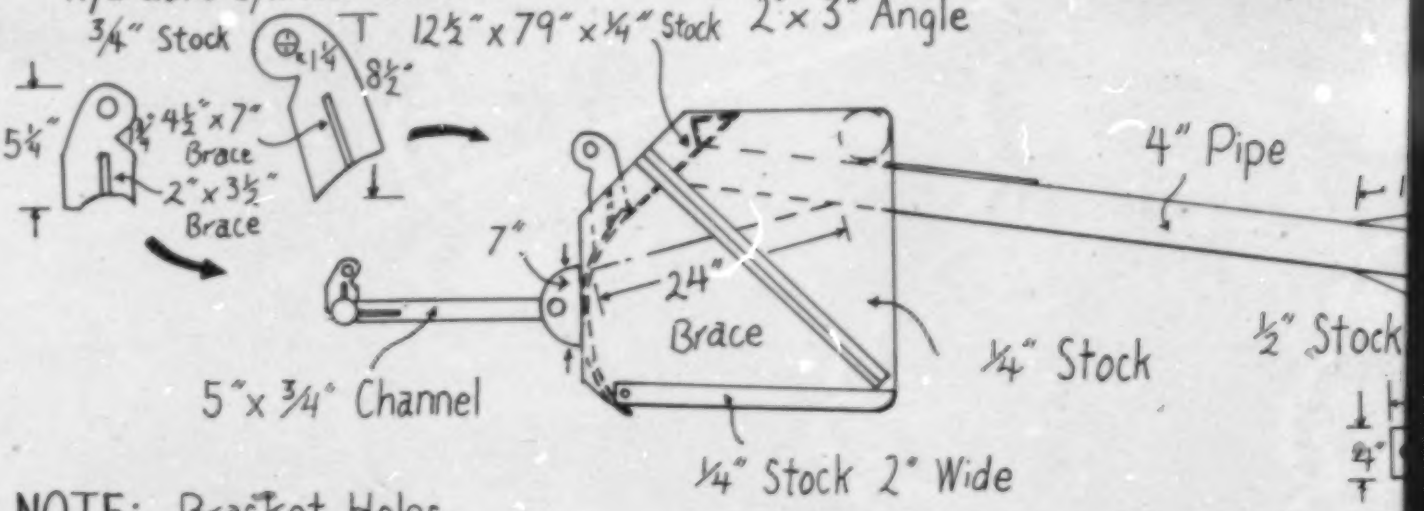
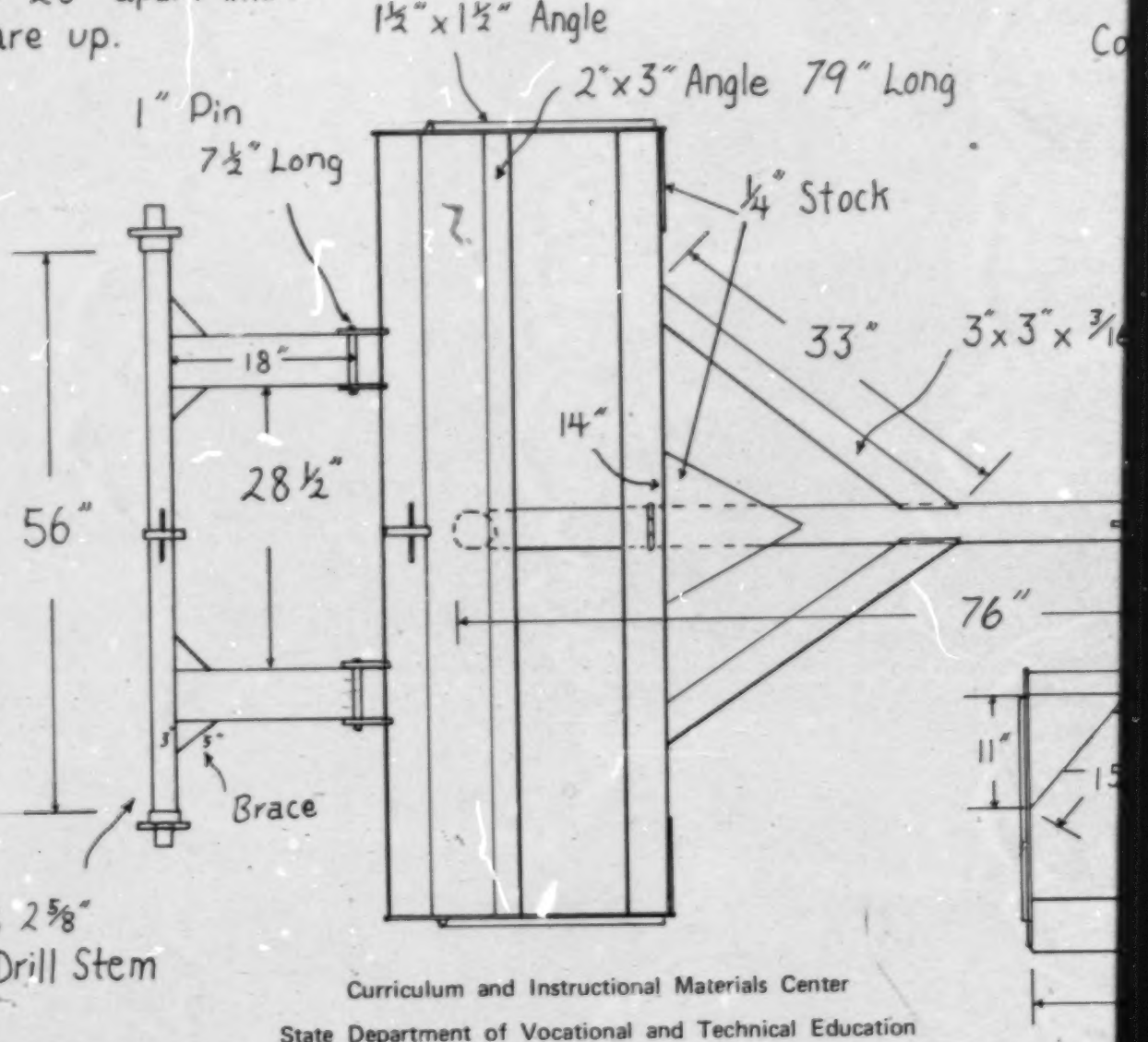
Stillwater, Oklahoma

Hydraulic Cylinder Brackets



NOTE: Bracket Holes must be 20" apart when wheels are up.



Courtesy of Guthrie Vocational Agriculture Department

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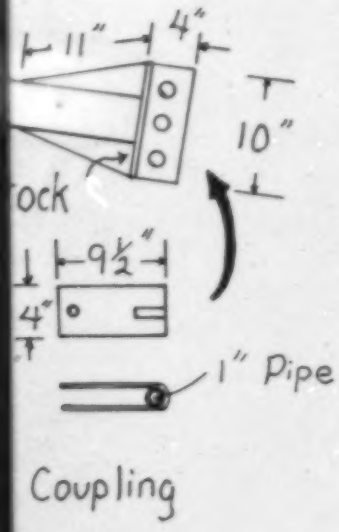
State Department of Vocational and Technical Education
Stillwater, Oklahoma

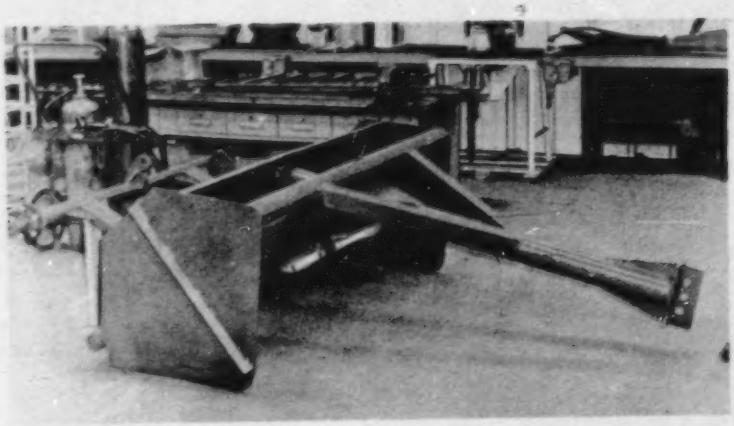
Land Leveler

Scale: 3/4"=1'

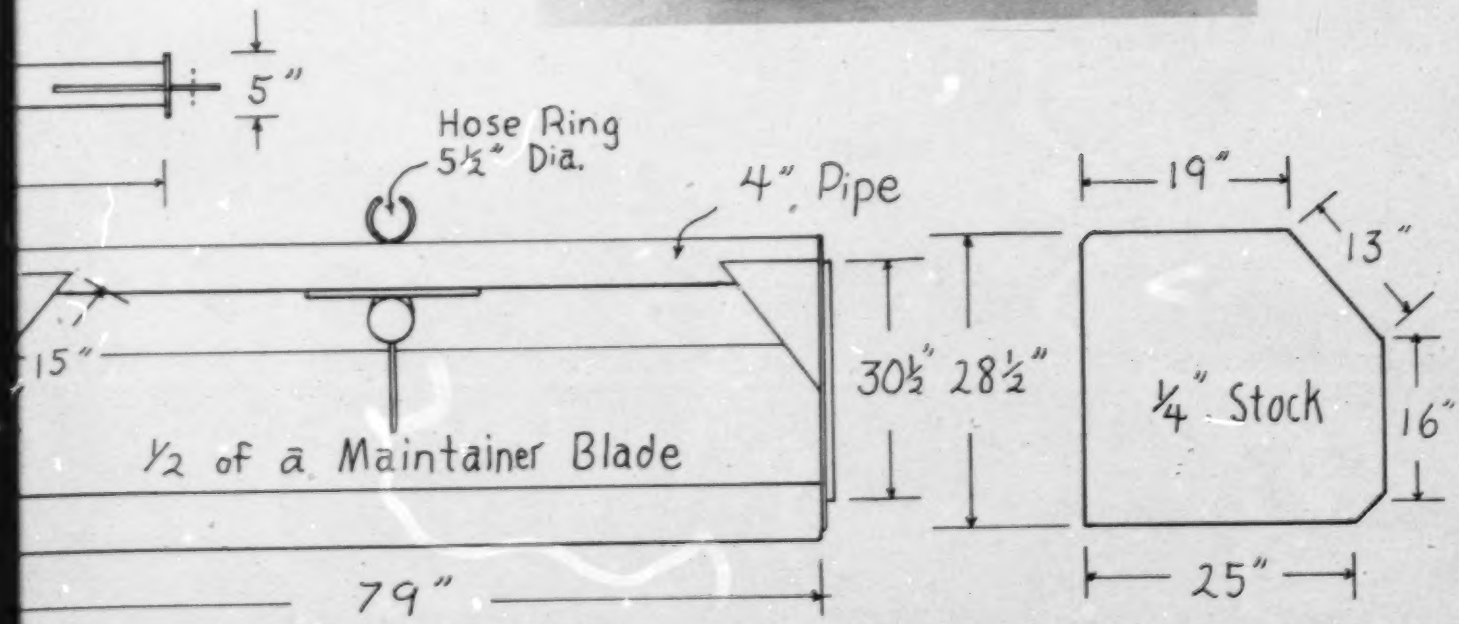


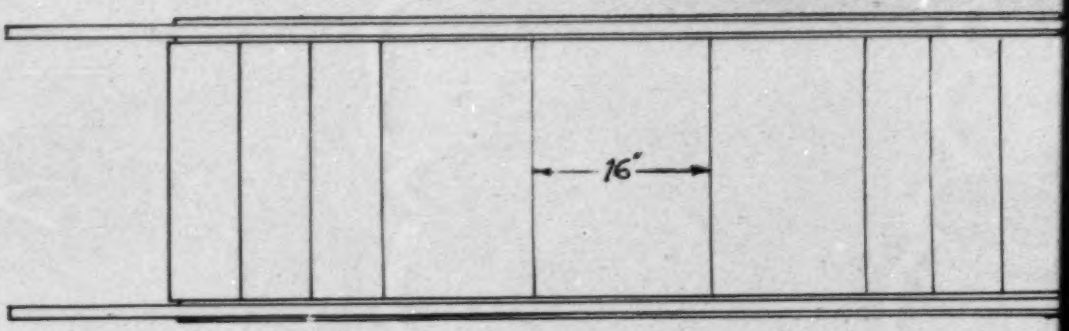
BILL OF MATERIAL

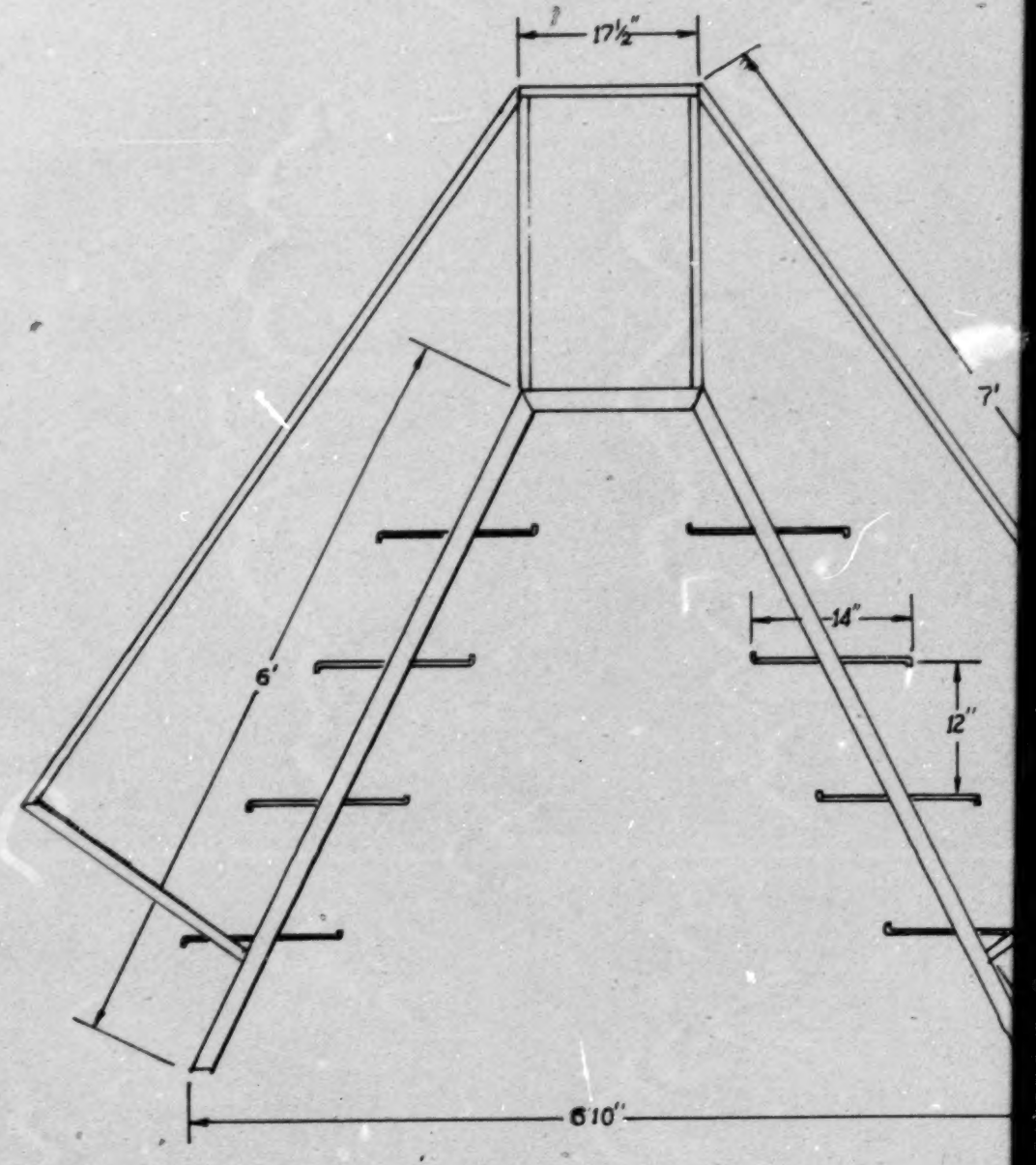
2 Pieces of ¼" Metal Stock 28½" Square
2 Pieces of 1½" x 1½" Angle Iron 30½" Long
2 Pieces of ¼" Stock 2" Wide and 25" Long
1 Piece of 4" Pipe 79" Long
1 Piece of 4" Pipe 76" Long
2 Pieces of 3" x 3" x 3/16" Angle Iron 33" Long
1 Piece of ¼" Stock 14" x 15" x 15"
2 Pieces of ¼" Stock 11" x 10" x 15"
1 Piece of ¼" Stock 6" Wide and 24" Long
1 Piece of 2" x 3" Angle Iron 79" Long
1 Piece of ¼" Stock 12½" x 79" Long
1 Piece of ½" Stock 4" x 10"
1 Piece of ½" Stock 5" x 10"
1 Piece of ½" Stock 6" x 11"
1 Piece of ½" Stock 4" x 19" Long
1 Piece of 1" Pipe 4" Long
½ of A Maintainer Blade 79" Long
2 Pieces of 1" Pipe 7½" Long
2 Pieces of Channel Iron 18" Long
2 Pieces of 5" x ¾" Channel Iron 18" Long
1 2 5/8" Upset Drill Stem 56" Long
2 Wheel Hubs
1 Piece of ¾" Stock 56" Square
1 Piece of ¼" Stock Approx. 20" Square
2 Pieces of 1/4" Stock 20" x 30"



3/16" Angle



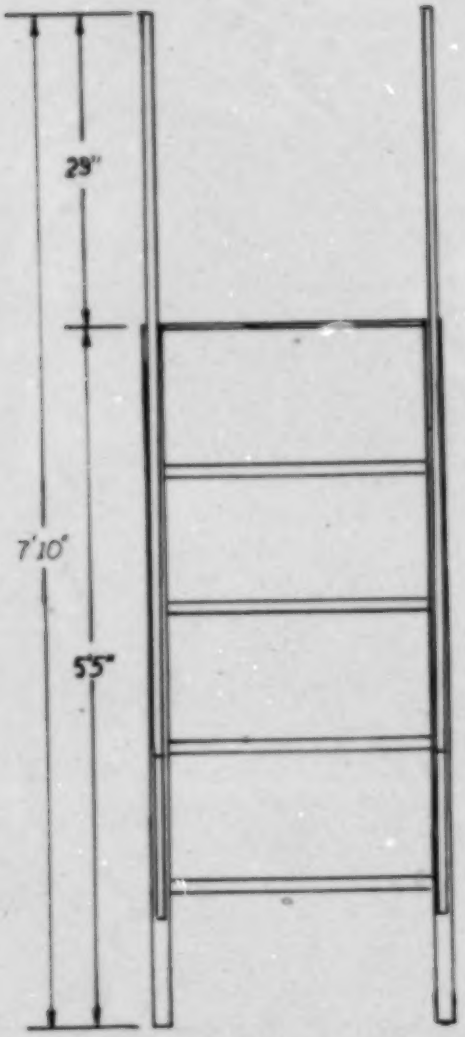

16"

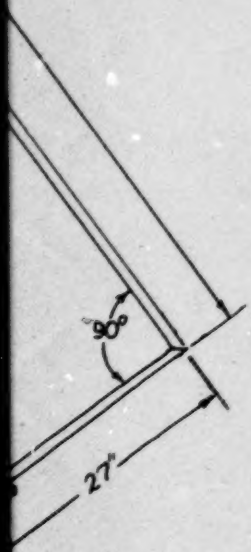

17½"
7'
14"
6'
12"
6'10"

BILL OF MATERIAL
4 PIECES OF 2" PIPE 6' LONG
2 PIECES OF 2" PIPE 17½" LONG
4 PIECES OF 1" PIPE 7' LONG
8 PIECES OF 1" PIPE 27" LONG
2 PIECES OF 1" PIPE 17½" LONG
9 PIECES OF 24"x16"x¼" FLAT METAL

Stile

Scale: ¾" = 1'

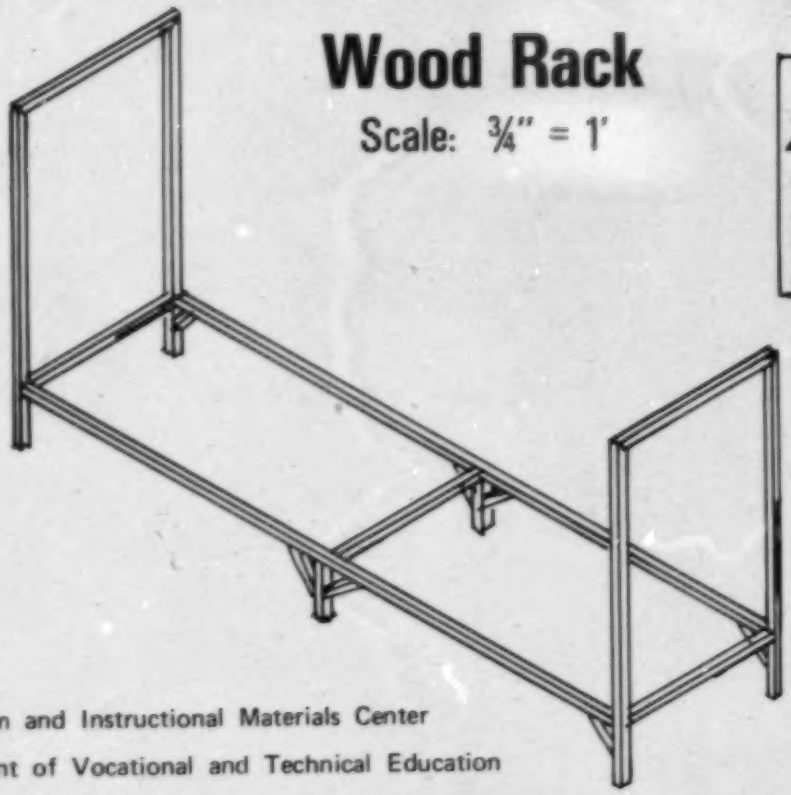




DWN BY: JOHN McEACHERN

Wood Rack

Scale: 3/4" = 1'



BILL OF MATERIALS

2 PIECES OF 1"SQ TUBING 7' 10" LONG
4 PIECES OF 1" SQ TUBING 4' LONG
2 PIECES OF 1" SQ TUBING 14" LONG
3 PIECES OF 1" SQ TUBING 12" LONG
8 PIECES OF 1" SQ TUBING 6" LONG
2 PIECES OF 1" SQ TUBING 8" LONG

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Trash Can R

BILL OF MATERIA

2 PIECES OF 5/8" ROD 5'5" LONG
2 PIECES OF 5/8" ROD 43½" LONG
4 PIECES OF 5/8" ROD 2" LONG FO
1 PIECE OF 5/8" ROD 16¾" LONG
1 PIECE OF 5/8" ROD 6" LONG

Courtesy of Anadarko
Vocational Agriculture Department

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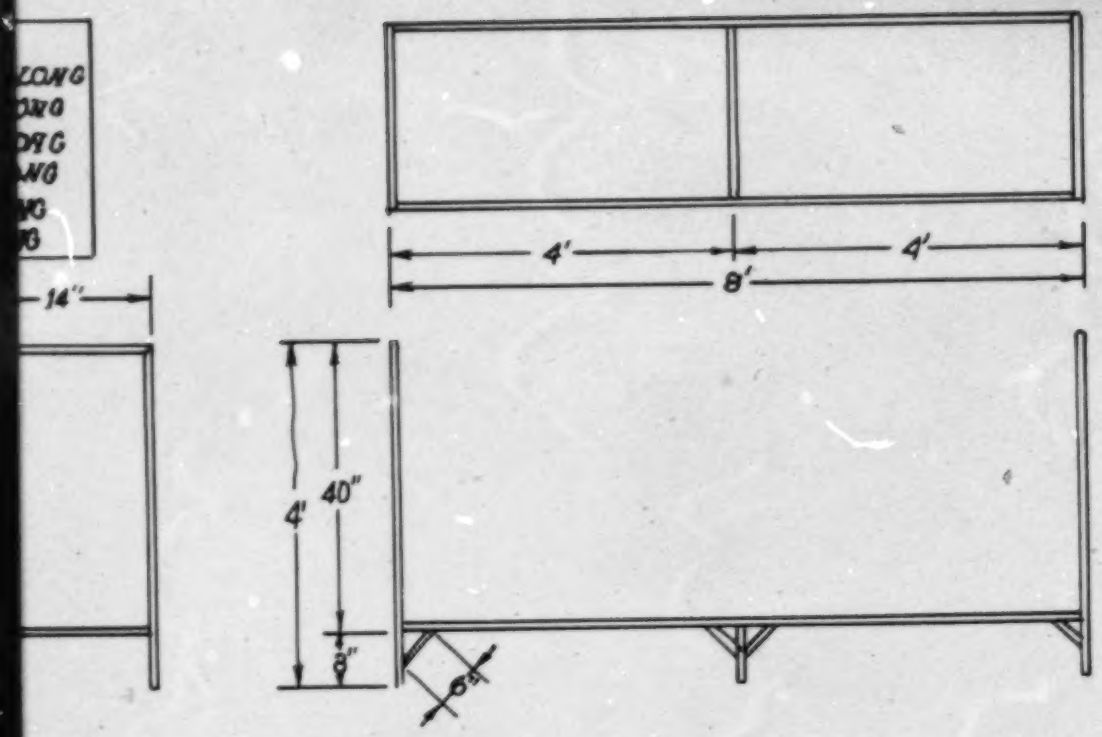
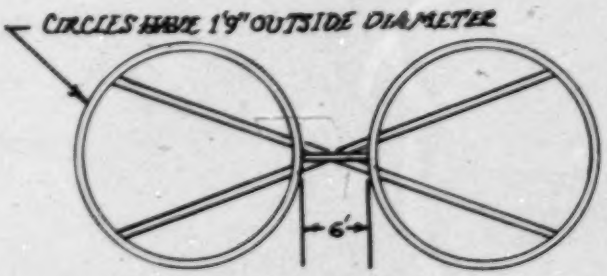
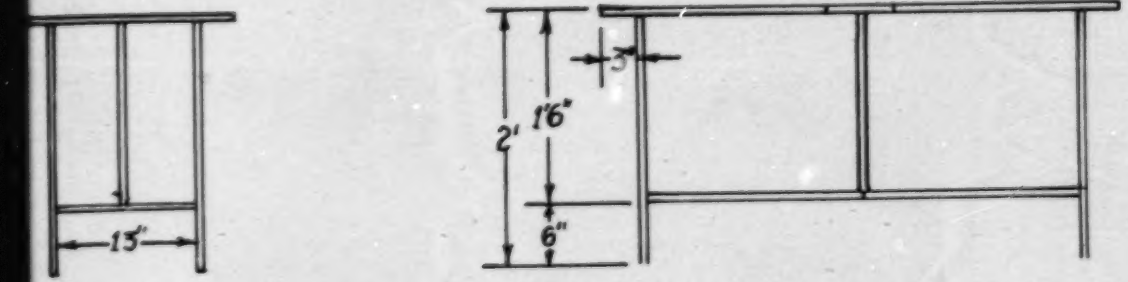


05:5

an Rack

TERIAL
" LONG FOR CIRCLES
e"LONG FOR CROSS PIECES
LONG FOR LEGS
" LONG
LONG





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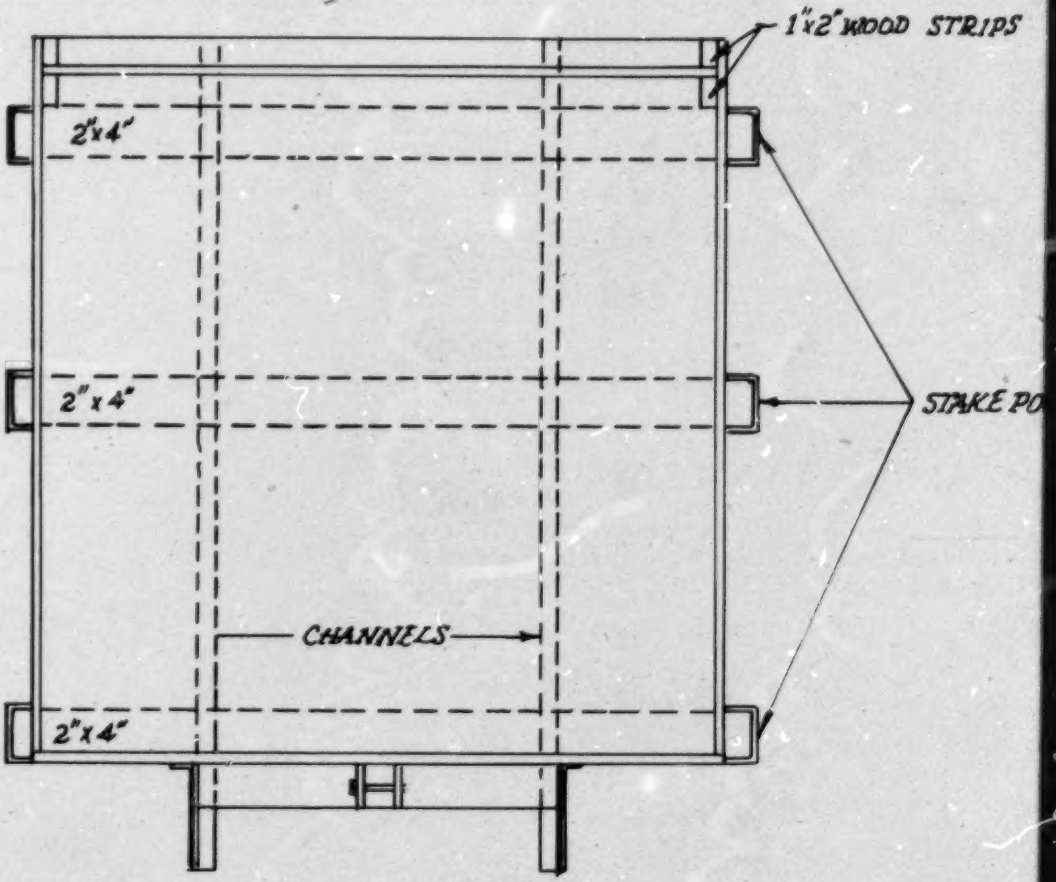
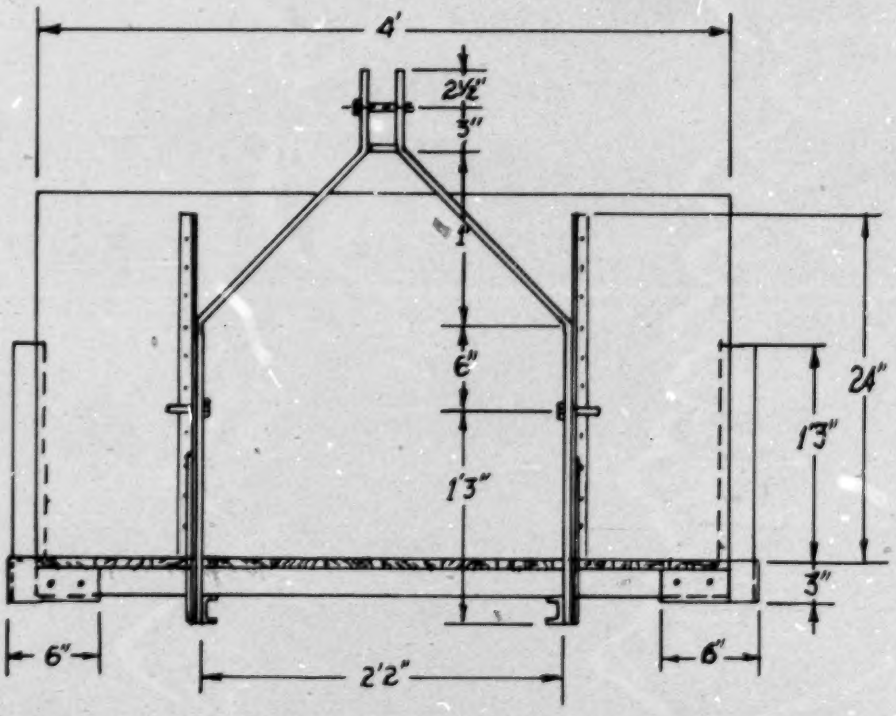




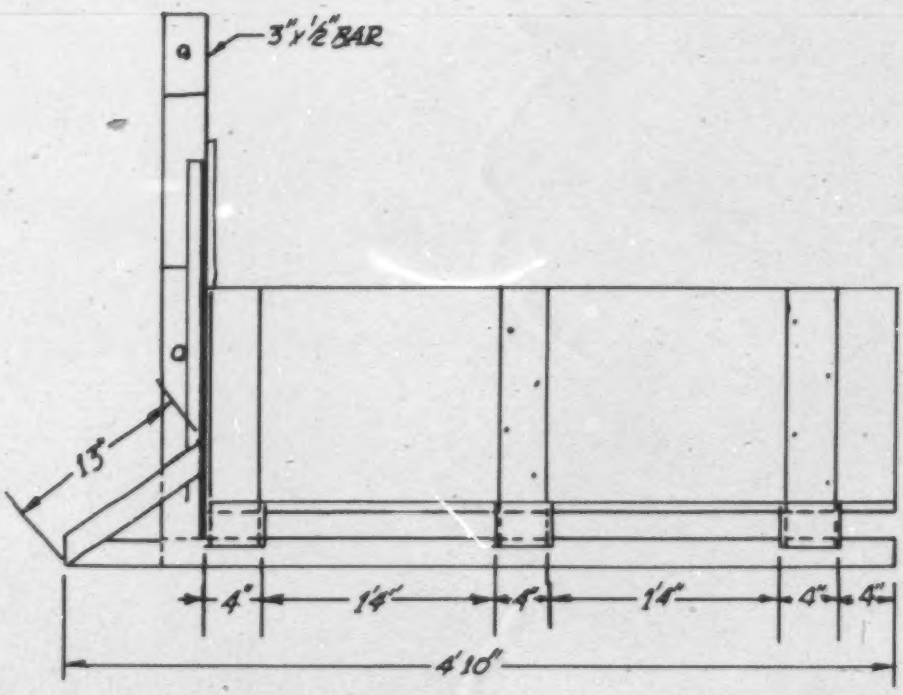
3-Point Carry-All

Scale: 1" = 1'

TRIPS

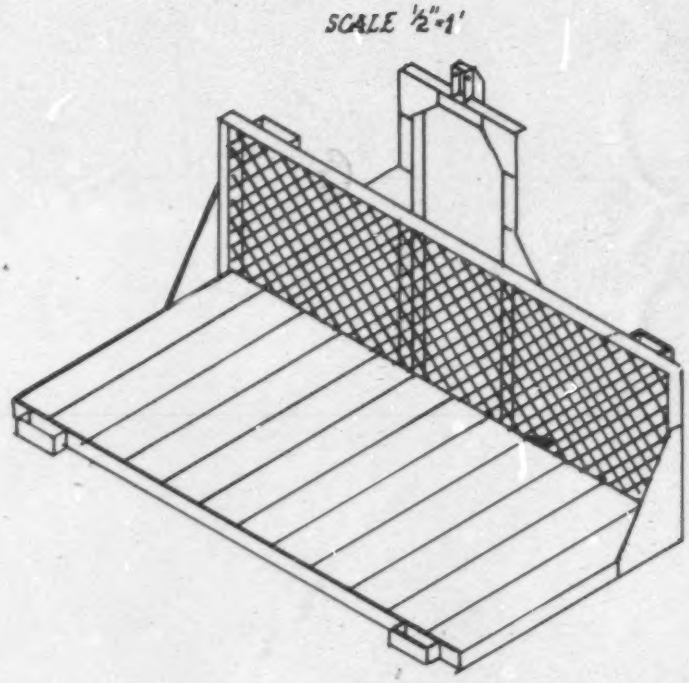
TAKE POCKETS

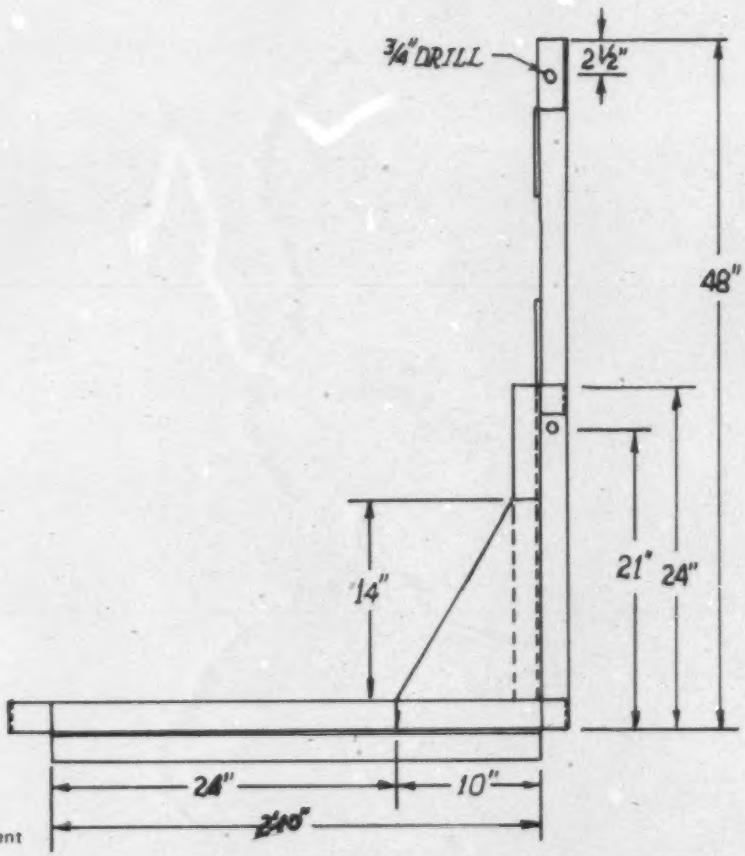
BILL OF MATERIALS
2 PIECES OF FLAT IRON ½"x 3"x41½"
1 PIECE OF FLAT IRON ½"x 2½"x3"
2 PIECES OF 1" ANGLE IRON 24" LONG
6 PIECES OF FLAT IRON ⅛"x 3"x 16"
2 PIECES OF 2" CHANNEL IRON 58" LONG
2 PIECES OF FLAT IRON ¼"x 2"x 12"
3 BOARDS 2"x4"x48"
7 BOARDS 2"x4"x21"
2 BOARDS ¾"x 15"x 46"
1 BOARD ¾"x 15"x 48"
18 CARRIAGE BOLTS ¼"x 4½"
12 STOVE BOLTS ¼"x 1¼"
24 CARRIAGE BOLTS ¼"x 3"

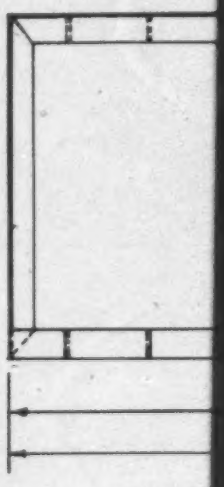


Tractor Ca

Scale: 1" =







Courtesy of OSU Extension
Vocational Agriculture Department

arry-All

" = 1'

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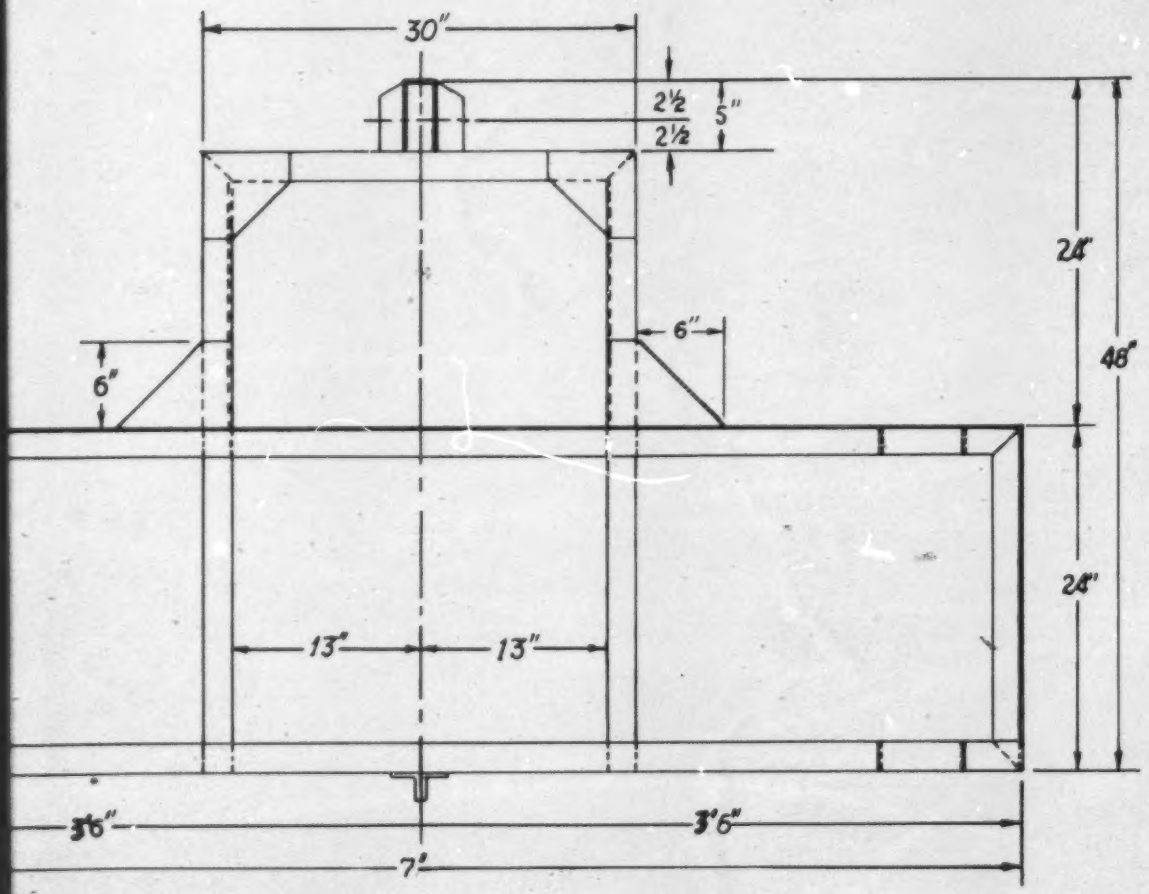
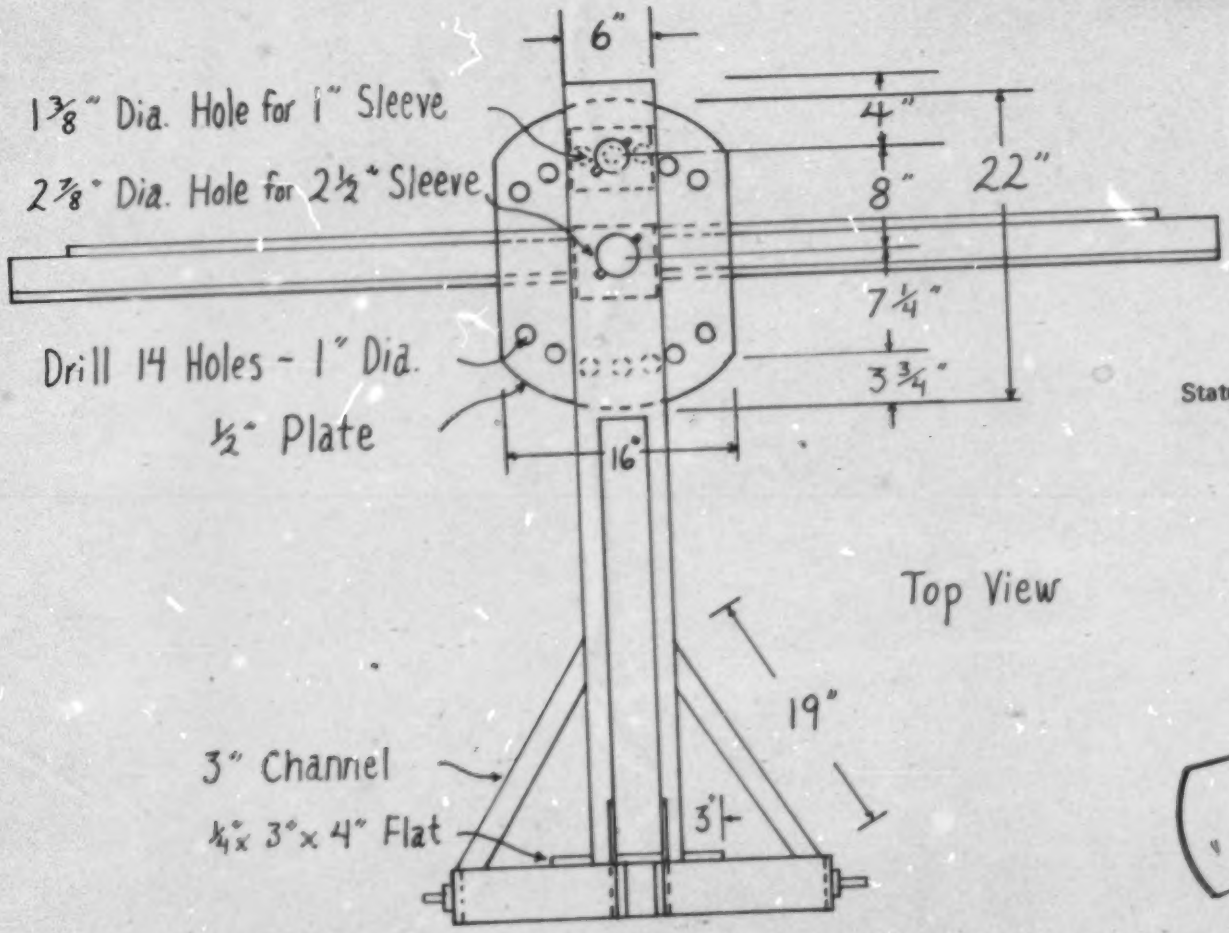
Stillwater, Oklahoma

BILL OF MATERIALS
25' OF ¼"x2" ANGLEIRON
6 PIECES OF 2"x6" CHANNEL IRON
2 PIECES OF ¼"x 10"x 14" FLANGE PLATES
4 PIECES OF ¼"x 6"x 8" FLANGE PLATES
1 PIECE OF EXPANDED METAL 2'x6'
2 PIECES OF STRAPMETAL ¼"x 2"x 5"
12-2"x6" BOARDS 2'11½" LONG





Curriculum and In
State Department of Vo
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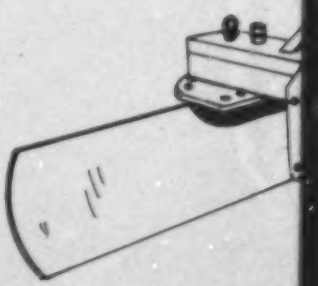
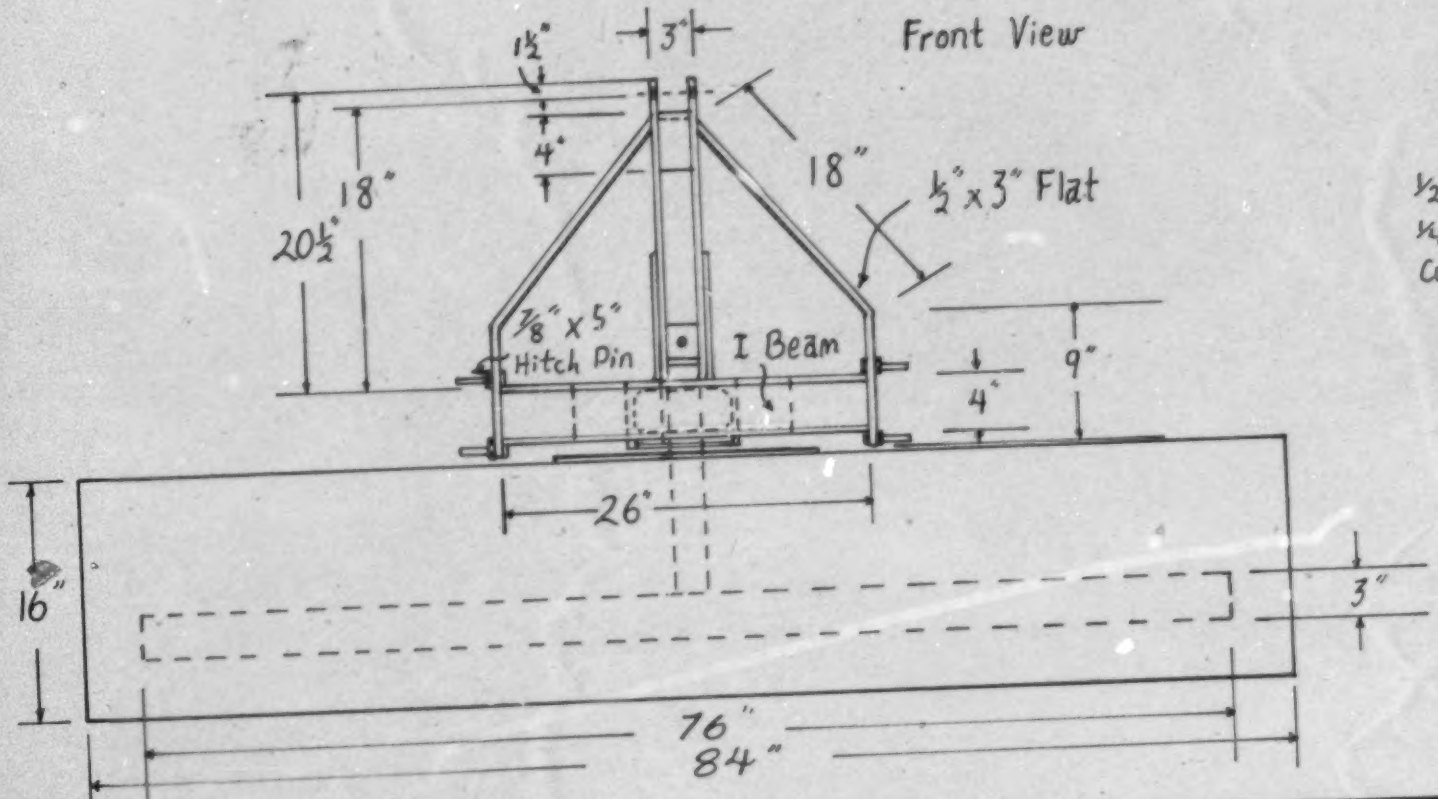


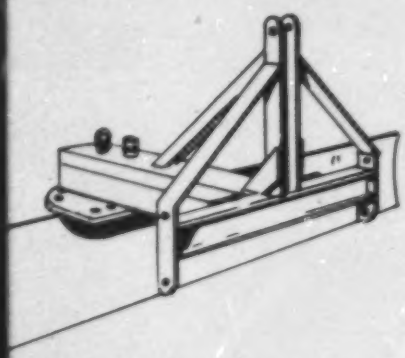


1/2" x
1/4" x
Cut or

Tractor Scraper Blade

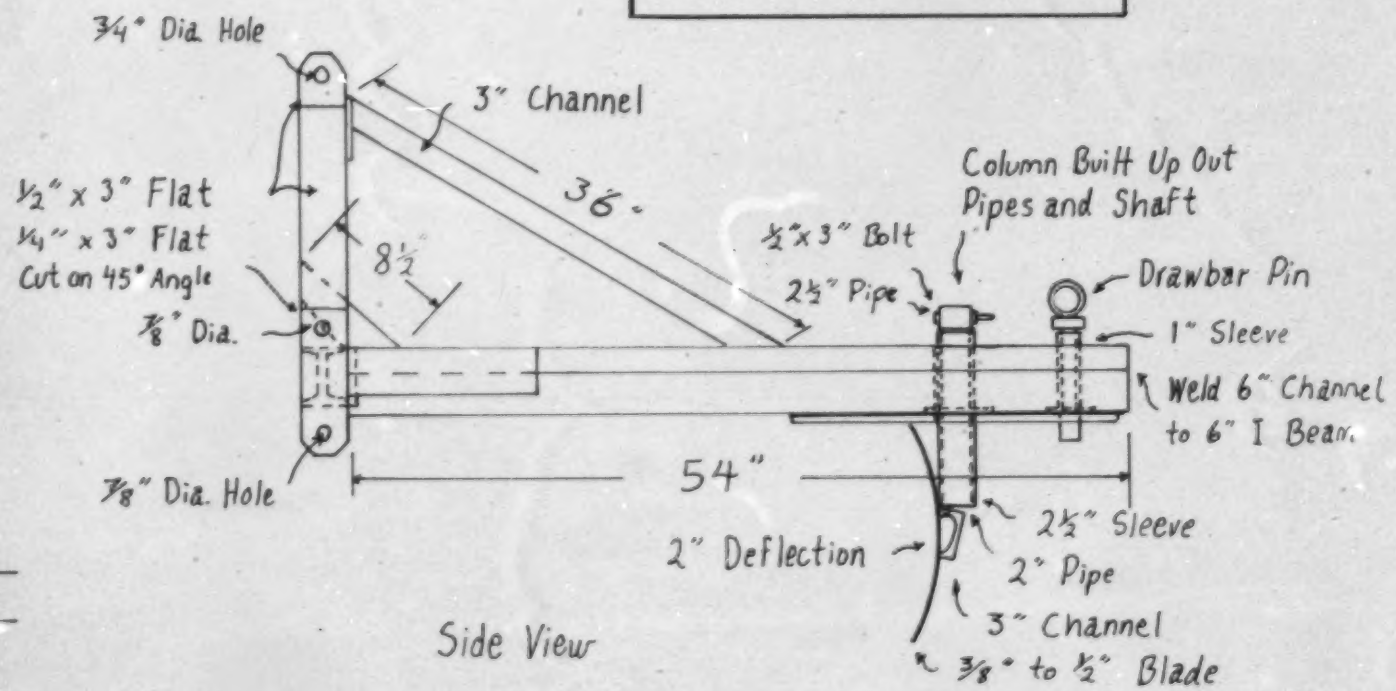
Scale: 1"=1'

riculum and Instructional Materials Center
artment of Vocational and Technical Education
Stillwater, Oklahoma



BILL OF MATERIAL

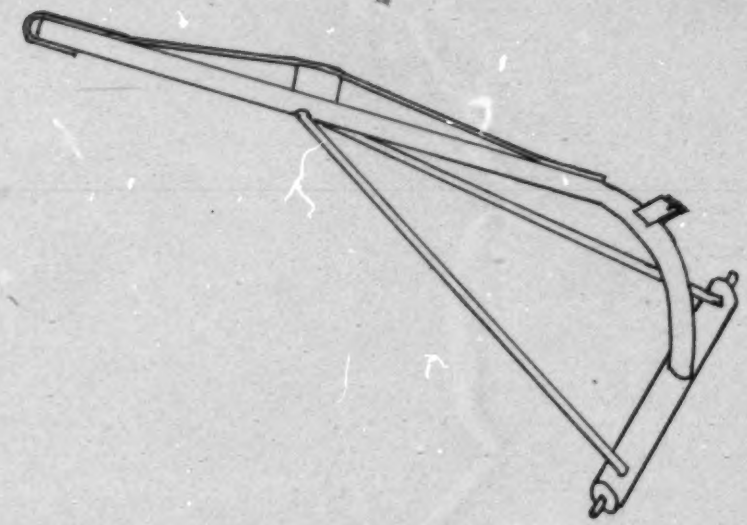
1 Piece of I Beam 4" x 26"
1 Piece of I Beam 6" x 54"
1 Piece of 6" Channel Iron 54" Long
1 Piece of 3" Channel Iron 30" Long
2 Pieces of 3" Channel Iron 19" Long
2 Pieces of ½" Flat 3" x 27"
2 Pieces of ½" Flat 3"x 20½"
2 Pieces of ¼" Flat 3" x 4"
1 Piece of ½" Flat 3" x 4"
2 Pieces of ¼" Flat 3" x 8½"
2 Pieces of ¼" Flat 4" x 5 3/8"
1 Piece of ½" Plate 16" x 22"
1 Piece of 2½" Pipe 6" Long
1 Piece of 1" Pipe 6" Long
1 Piece of 2" Pipe 16" Long
1 Piece of 1½" Pipe 16" Long
1 Piece of 1" Pipe 16" Long
1 Piece of Shafting 24" Long
1 Piece of 3" Channel 76" Long
1 Piece of 2½" Pipe 1½" Long
1½" x 3" Machine Bolt
1 - ½" x 3" Machine Bolt
4 - 7/*" Hitch Pins
1 - 3/8" or ½" Scraper Blade 84" Long

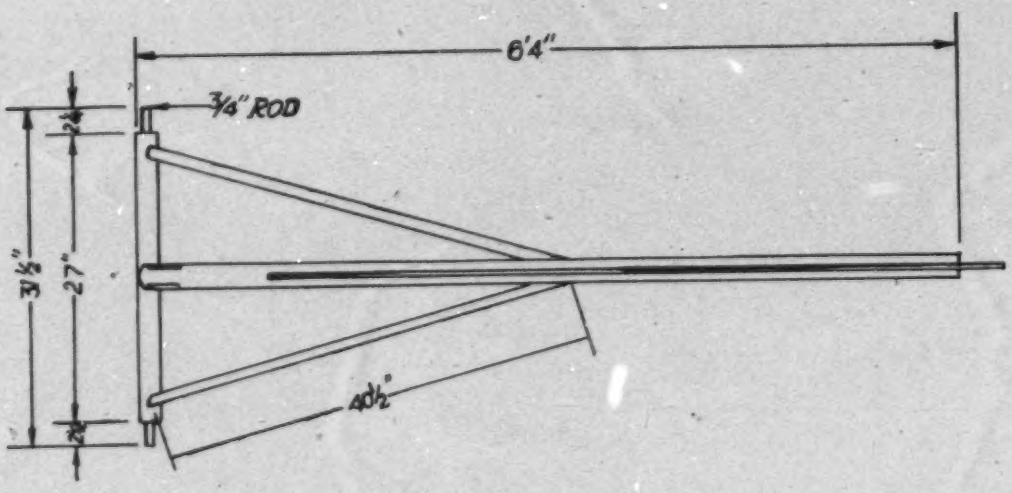


Side View

3-Point Hois

Scale: ¾" = 1'





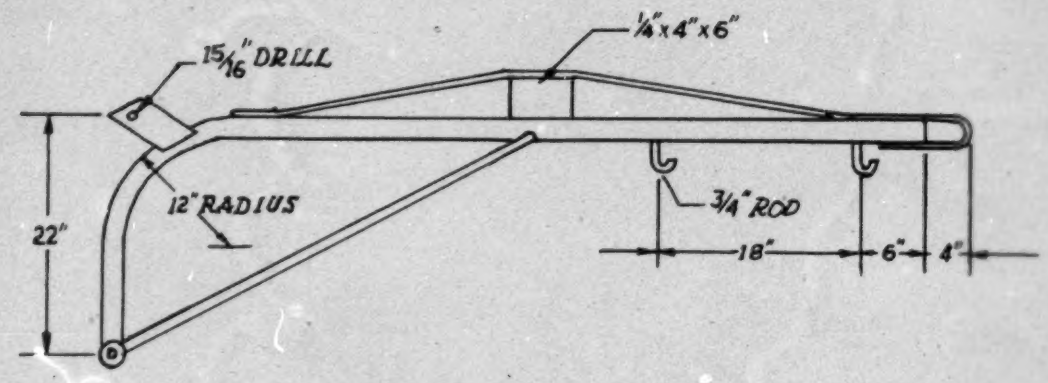
Courtesy of Keota
Vocational Agriculture Department

t Hoist

3/4" = 1'

BILL OF MATERIAL

1 PIECE OF 2" DOUBLE STRENGTH PIPE 98" LONG
1 PIECE OF 2" DOUBLE STRENGTH PIPE 27" LONG
1 PIECE OF 1" PIPE FOR BRACES 40 1/2" LONG
1 PIECE OF 3/4" ROD FOR TOP BRACE 6'7" LONG
1 PIECE OF STEEL PLATE 1/4" x 4' x 6"
2 PIECES OF STEEL PLATE 3/4" x 3" x 6"
2 PIECES OF 3/4" ROD FOR BOTTOM HOOKS 7" LONG
1 PIECE OF 3/4" ROD 31 1/2" LONG



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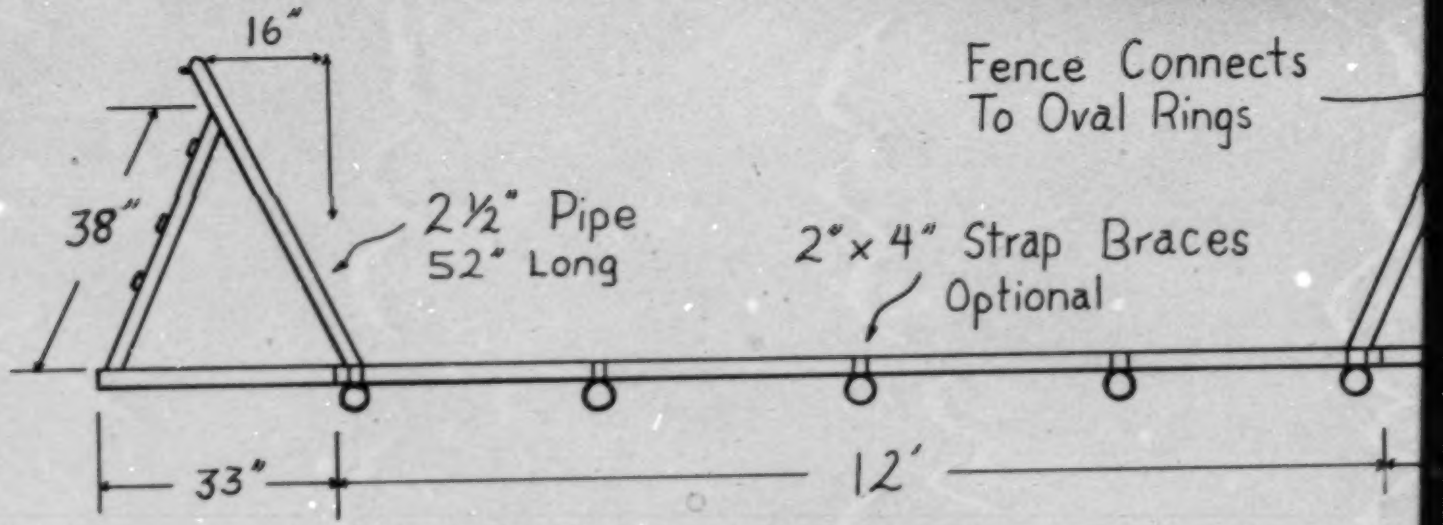
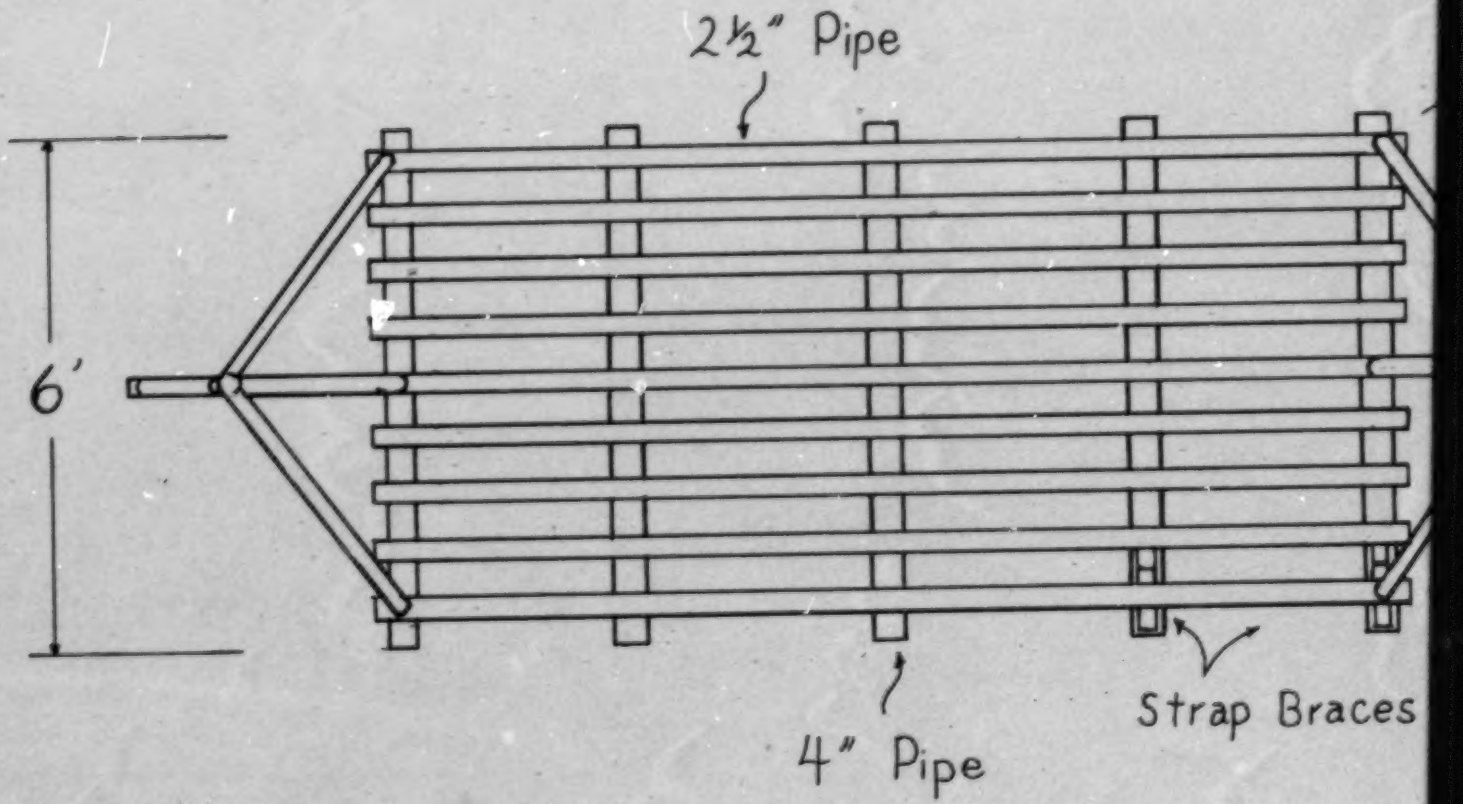
Stillwater, Oklahoma

DWN BY: JOHN McEACHERN



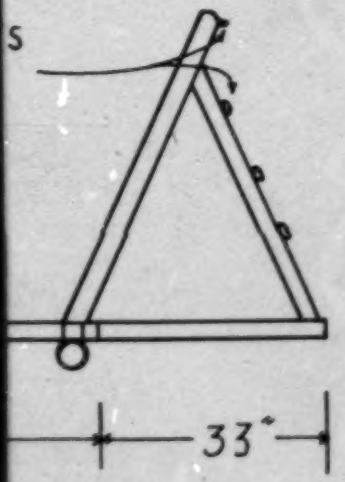


Curriculum and Instructional Materials
State Department of Vocational and Technic
Stillwater, Oklahoma

Courtesy of Cowe
Vocational Agriculture Department

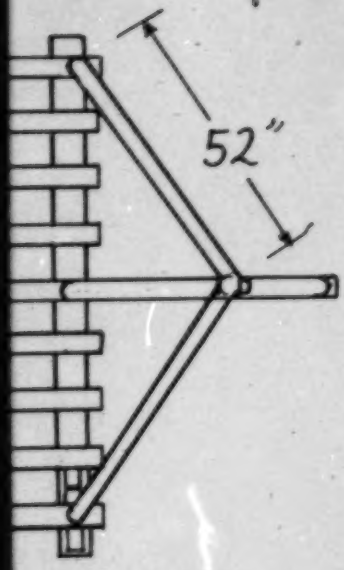
Cattle Guard

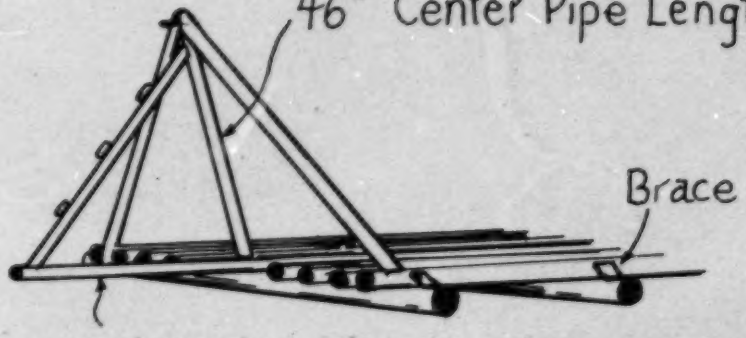
Scale: 1/2"=1'



BILL OF MATERIAL

5 Pieces of 4" Pipe 72" Long
8 Pieces of 2½" Pipe 12' Long
1 Piece of 2½" Pipe 17' Long
4 Pieces of 2½" Pipe 52" Long
2 Pieces of 2½" Pipe 47" Long
2 Pieces of 2½" Pipe 38" Long
20 Pieces of 2" x 4" Strap Metal
70 Pieces of 1½" x 3" Strap Metal
8 Pieces of Oval Shaped Rings





Pictorial View of One End

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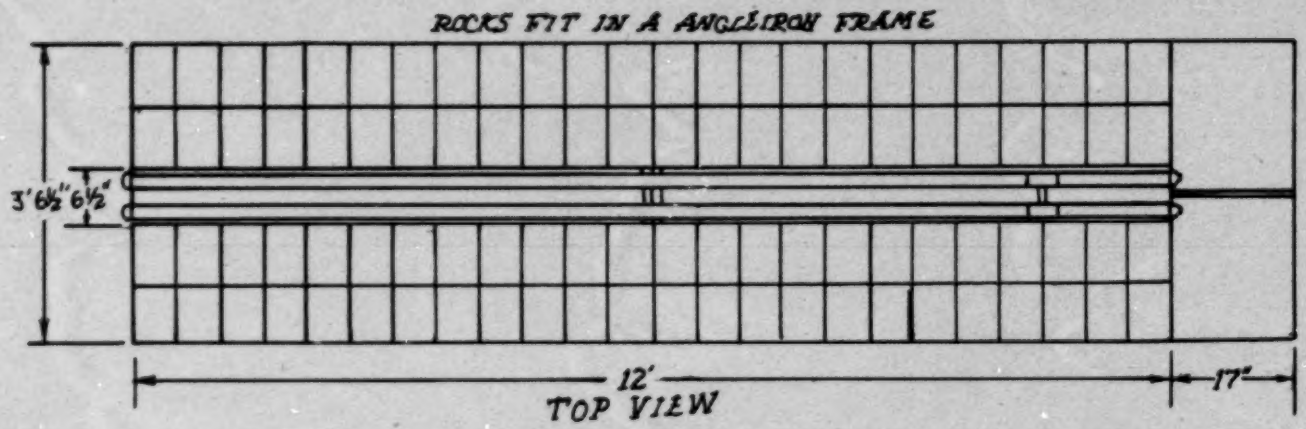
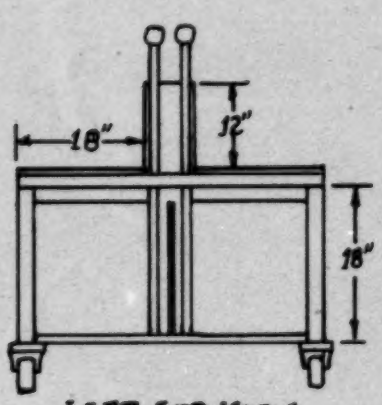
Materials Center
Technical Education
nia

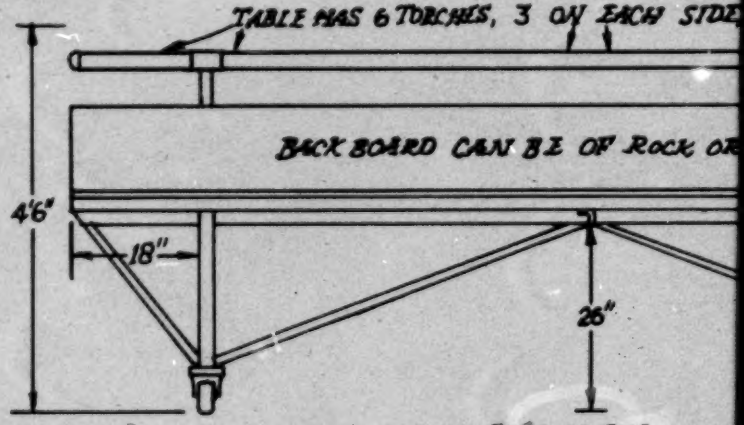
Rea

Portable Oxyacetyle

Scale: ½" =







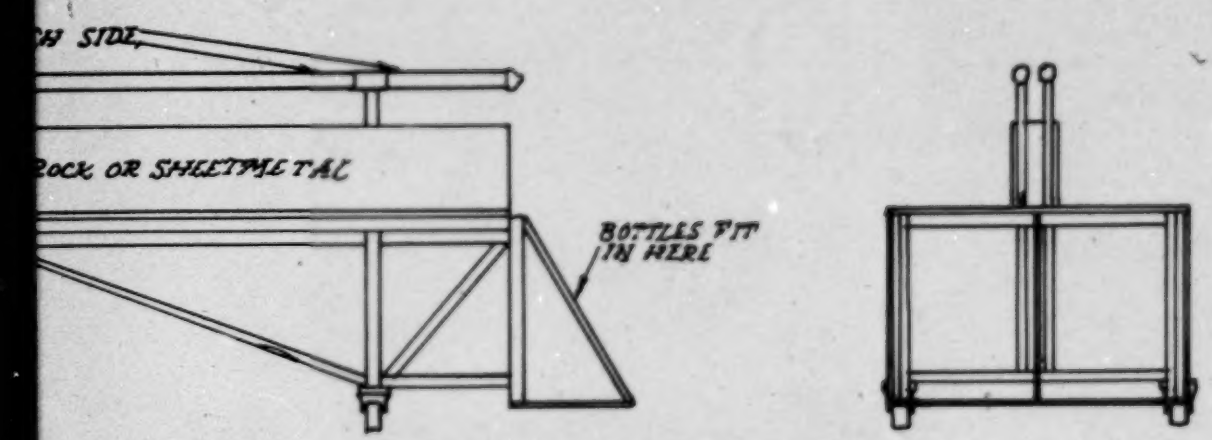
LEGS AND TOP SIDE ARE OF 1½
BOTTOM BRACES ARE 1" SQ

Courtesy of Hartshorne
Vocational Agriculture Department

etylene Manifold

½" = 1'

BILL OF MATERIAL
2 PIECES OF 1¾" PIPE 12' LONG
4 PIECES OF 2" PIPE 4" LONG
4 PIECES OF 1¾" PIPE 18" LONG
3 PIECES OF 1½" ANGLE IRON 12' LONG
5 PIECES OF 1½" ANGLE IRON 3'6½" LONG
2 PIECES OF 1½" ANGLE IRON 2'3" LONG
2 PIECES OF 1" SQUARE TUBING 3'3" LONG
2 PIECES OF 1" SQUARE TUBING 4'8" LONG
4 PIECES OF 1" SQUARE TUBING 3'5" LONG
2 PIECES OF 1" SQUARE TUBING 2'4" LONG
2 PIECES OF 1" SQUARE TUBING 1'6" LONG
96 ROCKS 9"x2"x6"
1 PIECE OF SHEETMETAL OR ROCK 1'X12'
4 PIPE CAPS
4 WHEELS



OF 1½" PIPE OR LARGER
E 1" SQUARE TUBING

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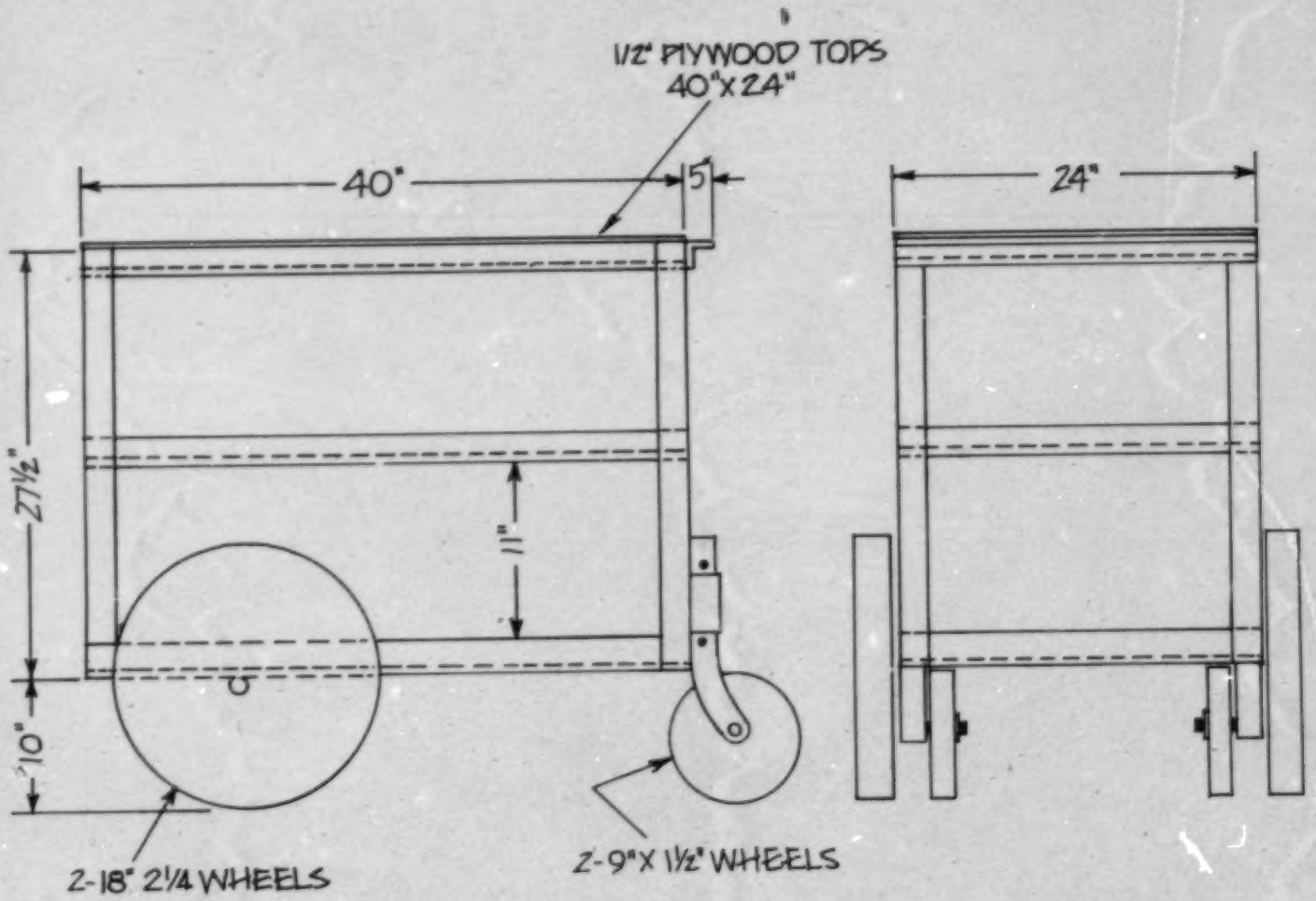
State Department of Vocational and Technical Education
Stillwater, Oklahoma

DWN BY: JOHN McEACHERN

Shop Cart

Scale: 3/8"=1"



BILL OF MATERIAL

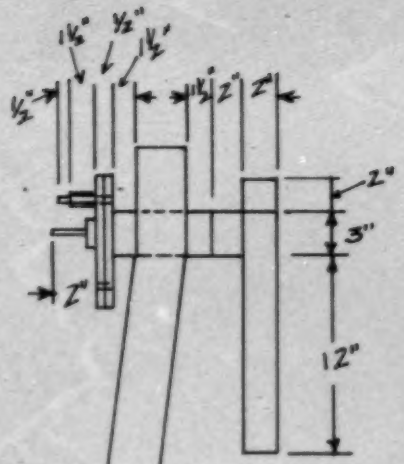
2" x 2" Angle Iron 41' Long
1/2" Sucker Rod 4' Long
1/2" Plywood 30 Square Feet
4 Metal Wheels

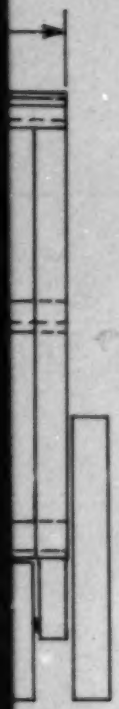
Curriculum and Instructional Materials Center
State Department of Vocational and Technical Education
Stillwater, Oklahoma

Courtesy of Guthrie
Vocational Agriculture Department

Portable Engine Stand

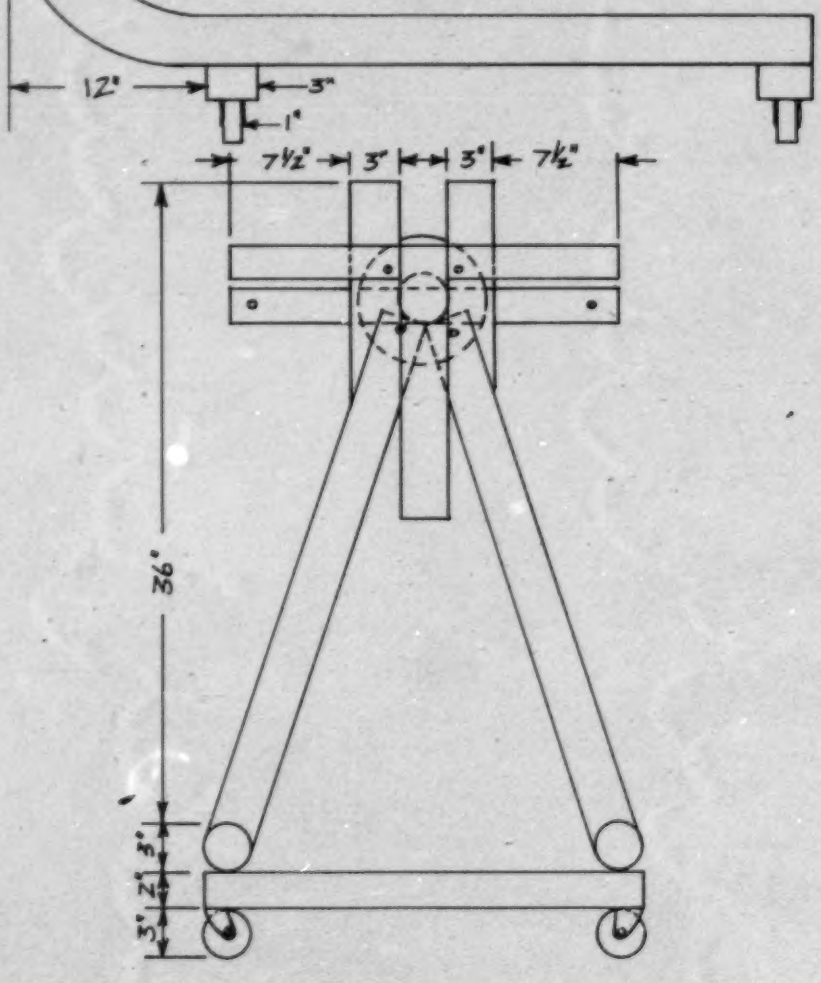
Scale: 3/32" = 1'





BILL OF MATERIAL

- 3" O.D. Steel Pipe 96" Long
- 1/2" Sucker Rod 10" Long
- 1/2" x 2" Flat Iron 2' Long
- 1 16
- 1 1/2" x 3" Channel Iron 56" Long
- 1" Square Tubing 2" Long
- 2 Pieces of 1/2" Steel Plate in 8" Squares
- 2" x 3" Box Tubing 16" Long
- 1" x 2" Channel Iron 4' Long
- 1 Piece of 1/2" x 2" Spring
- 3" I.D. Steel Pipe 2" Long
- 4 Heavy Duty Casters

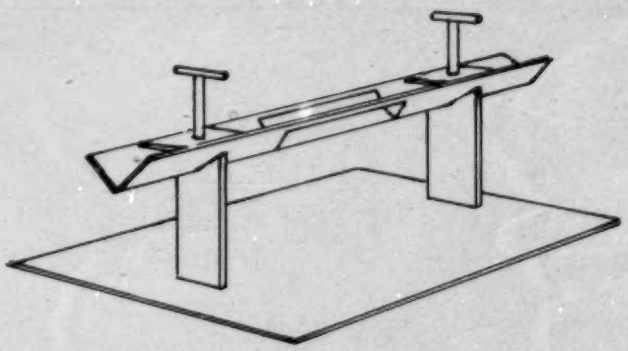


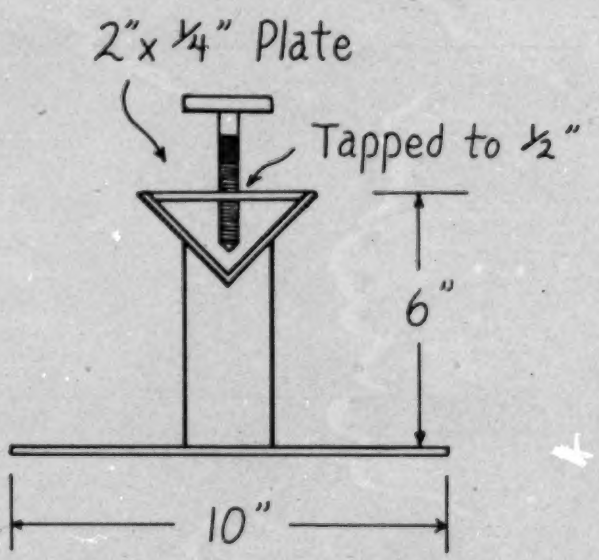
Round Stock Welding Jig

Scale: 1/4" =1"

BILL OF MATERIAL

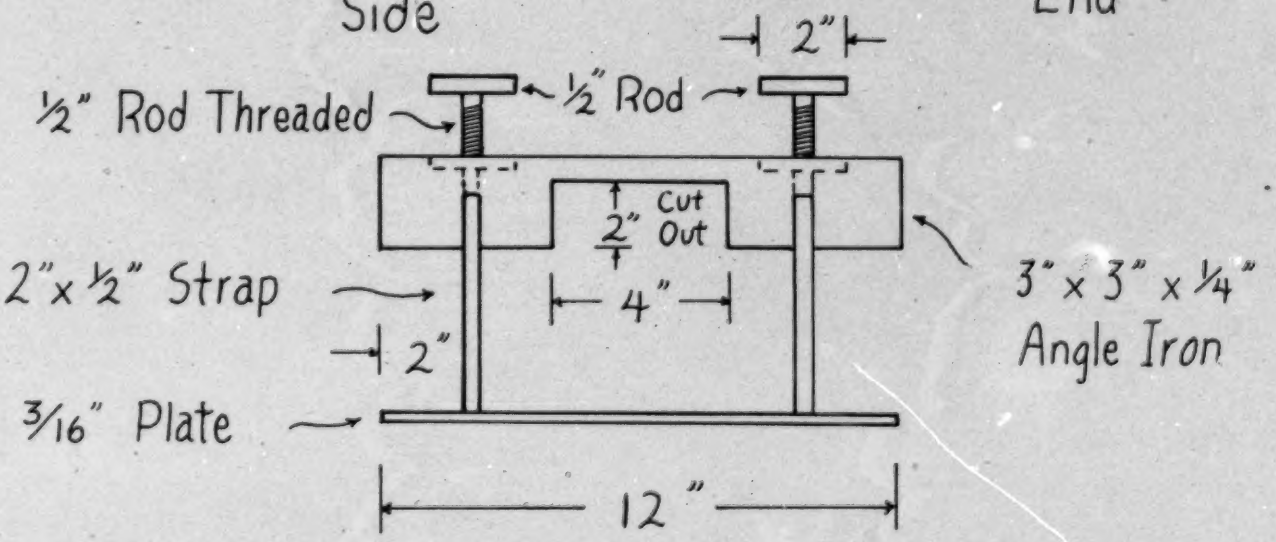
1 Piece of 3/16" Guage Metal 10" x 12"
1 Piece of 3" x 3" x 1/4" Angle Iron 12" Long
2 Pieces of 1/2" Strap 2" Wide x 5 1/2" Long
2 Pieces of 1/4" Plate 2" Wide x 3 1/2" Long
2 Pieces of 1/2" Rod 3" Long
2 Pieces of 1/2" Rod 2" Long





End

Side



Portable Extension Outlet

Scale: 3/16" =1"

BILL OF MATERIAL

1 Piece of 1/2" Thinwall Conduit 32" Long
1 Piece of 1/4" Rod 14" Long
3 Pieces of 3/16" x 1" Flat Metal 12 1/2" Long
1 Piece of 1/2" Box Connector
1 Handy Box
1 - No. 16 Grounded Extension Cord 20' Long

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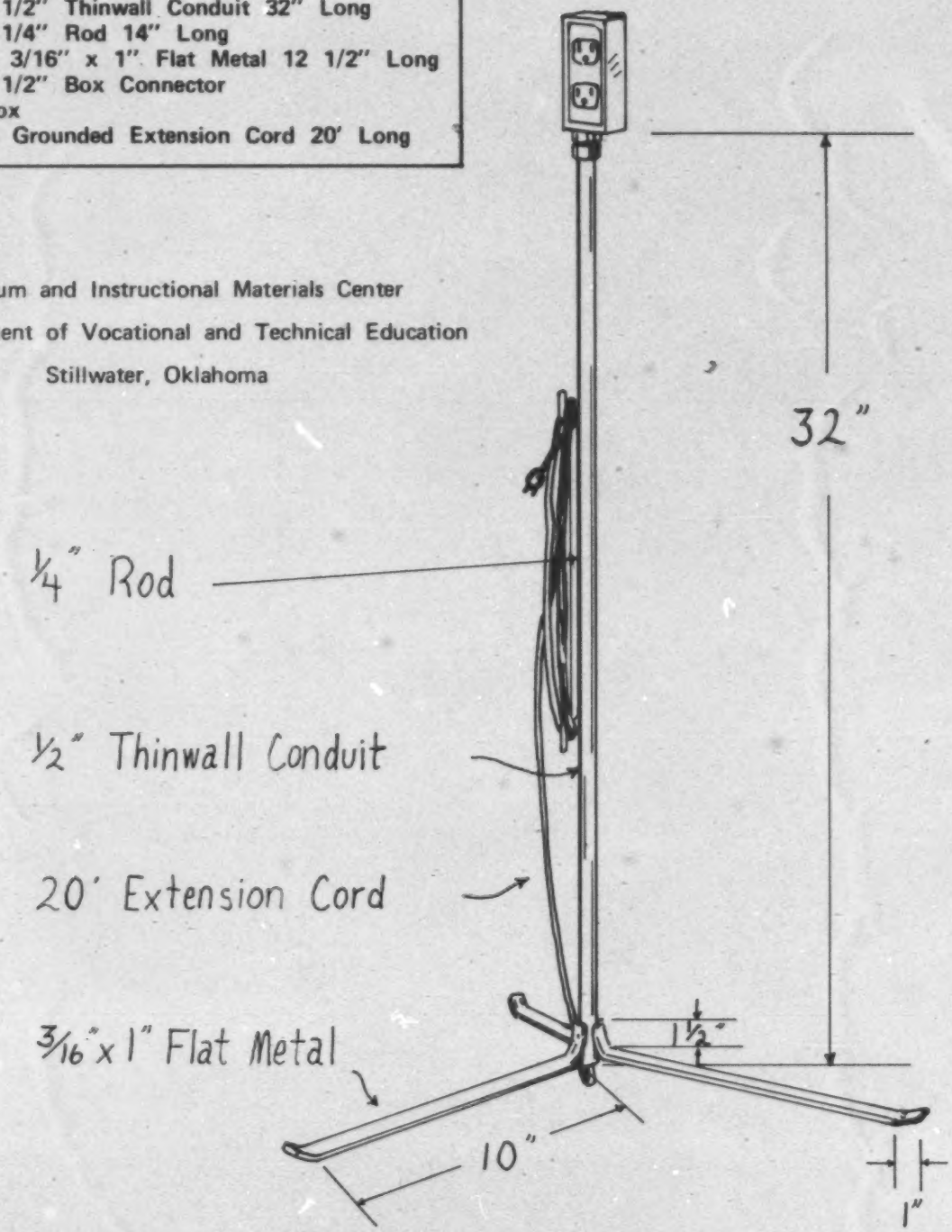
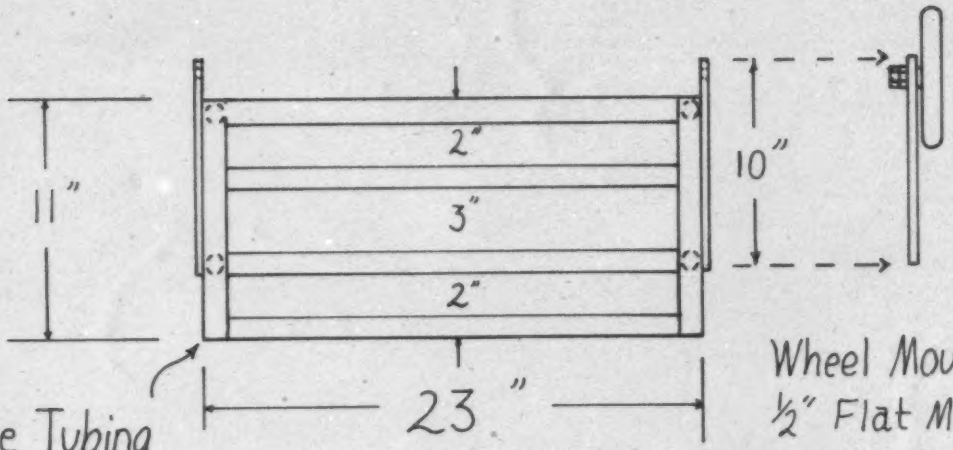
State Department of Vocational and Technical Education
Stillwater, Oklahoma



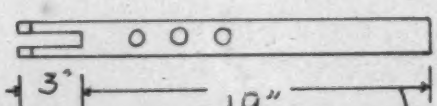


1" Square Tubing

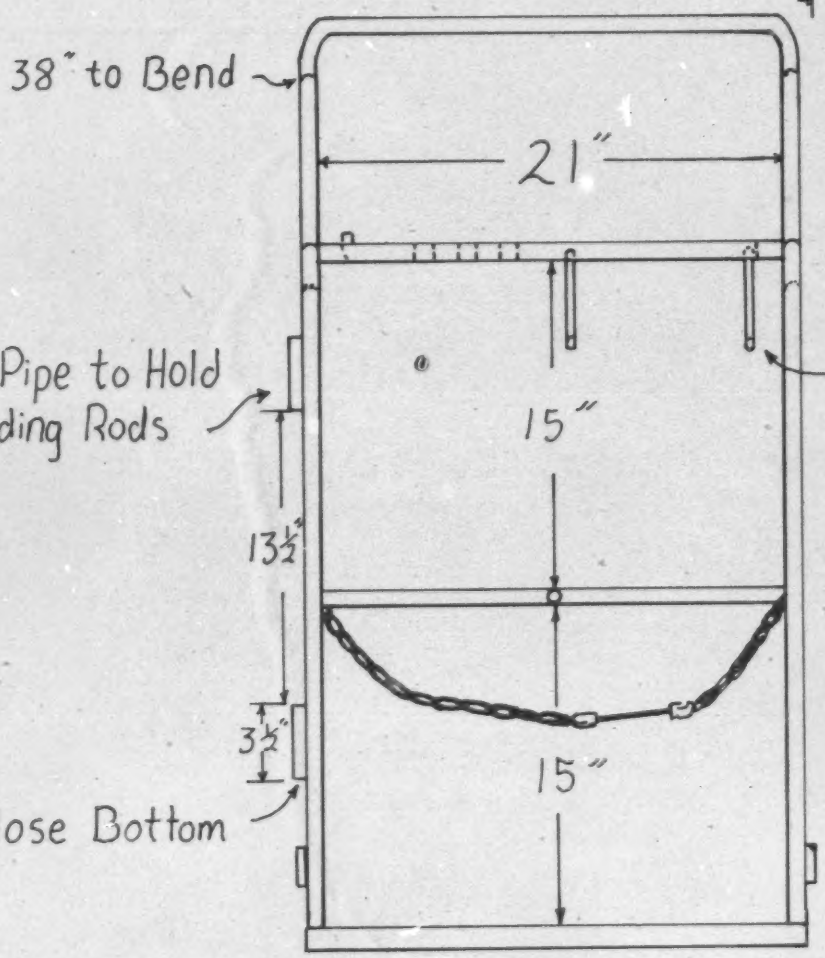
Wheel Mount
½" Flat Metal

1st Nut Welded
2nd Nut Loose

Base

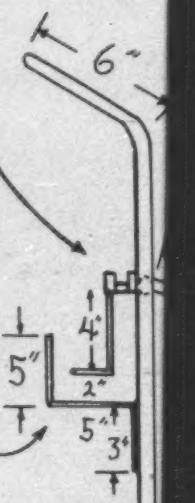


1¾"x19" Tray



½" Pipe to Hold
Welding Rods

½" Rod To Hang
Hose, etc.



1½"x1¼" Bracket

Close Bottom

Wheel Mount Height
Depends on Wheel Size

¾" Hole

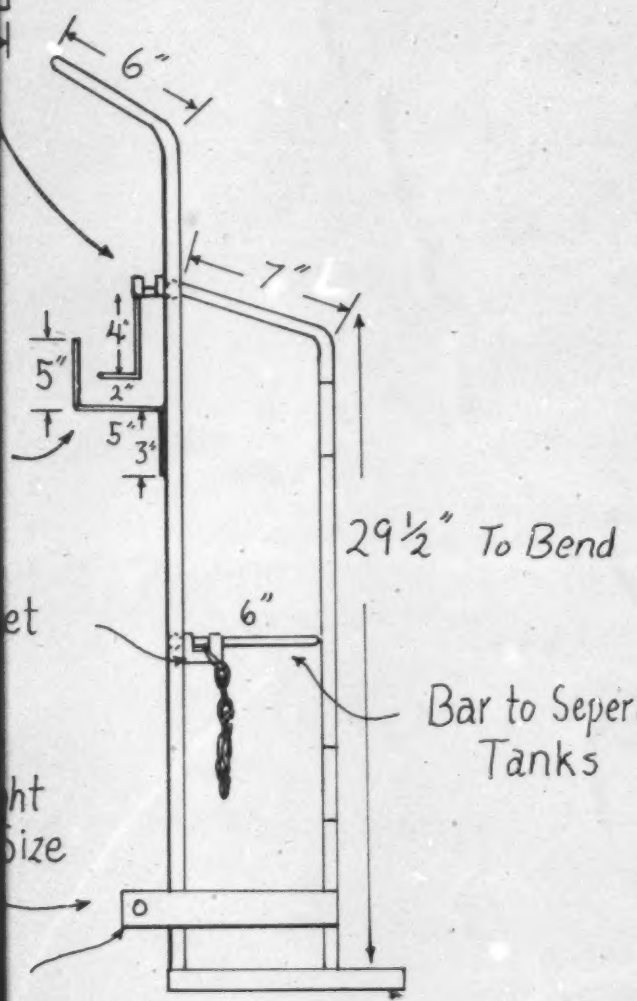
Oxyacetylene Cart

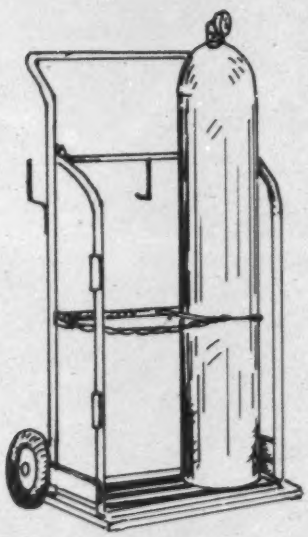
Scale: 1/8"=1'

t Nut Welded to Frame
d Nut Loose

BILL OF MATERIAL

1 Piece of 1/2" Pipe 100" Long
2 Pieces of 1/2" Pipe 36" Long
2 Pieces of 1/2" Pipe 3 1/2" Long
2 Pieces of 1/2" Flat Steel 10" Long
2 Pieces of 1" Square Tubing 23" Long
3 Pieces of 1" Square Tubing 21" Long
2 Pieces of 1" Square Tubing 11" Long
2 Pieces of 1/2" Pipe 21" Long
1 Piece of 1 3/4" Flat 19" Long
1 Piece of 1/2" Rod 6" Long
2 Pieces of 1/2" Rod 6" Long
1 Piece of 1/2" Rod 13" Long
Chain and Clamp
2 Wheels, 2 Rods, and 4 Nuts





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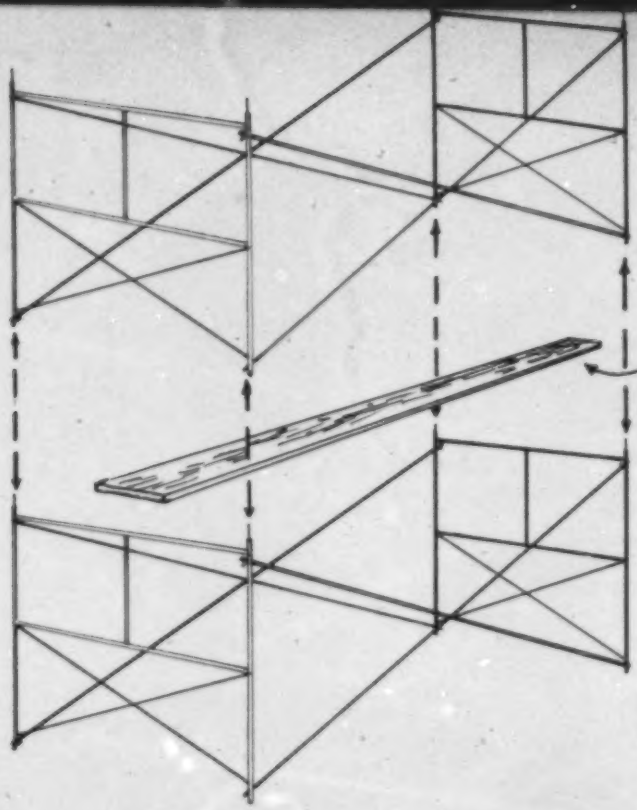
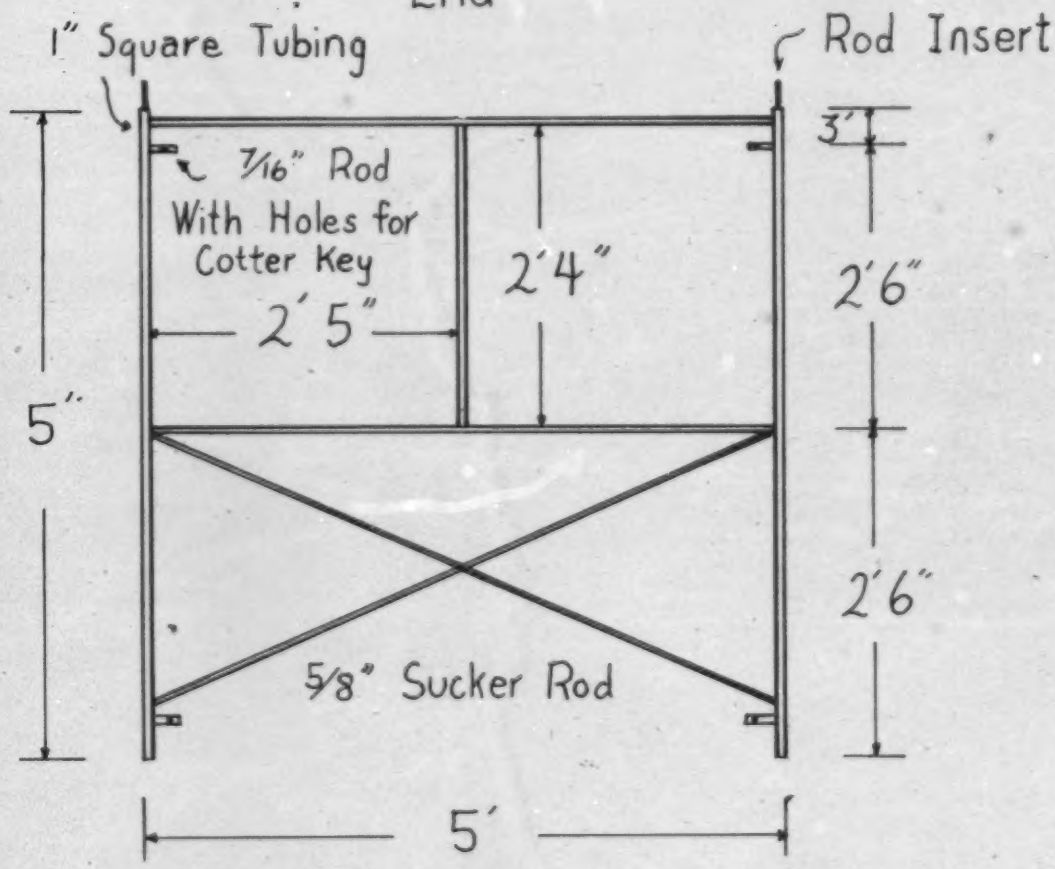


2" x 12" Planking

Scaffolds Stacked
By Placing Tubing
Over Rod Inserts

End

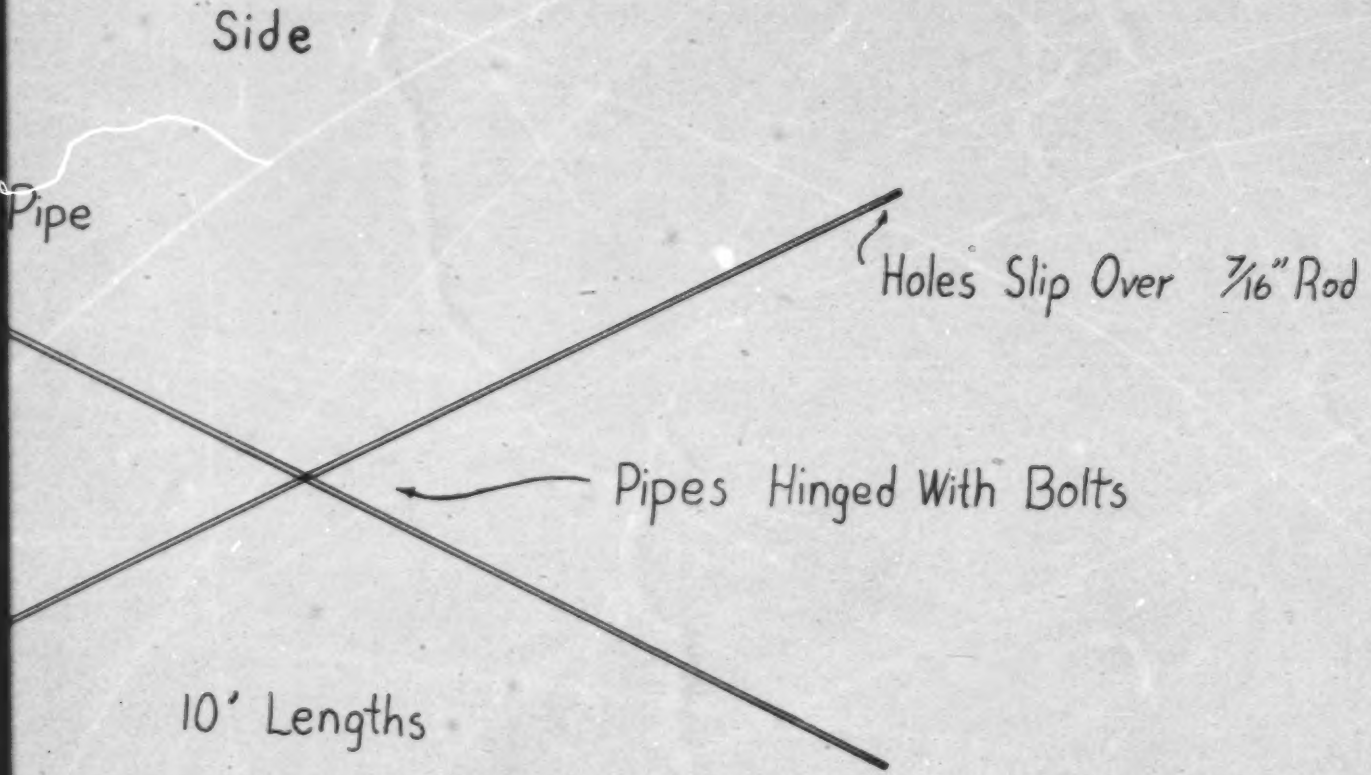


Stack Scaffolding

Scale: 3/4"=1'

BILL OF MATERIAL

4 Pieces of 1" Square Tubing 5' Long
4 Pieces of 7/16" Rod 6" Long
4 Pieces of 1" Square Tubing 4'11" Long
2 Pieces of 1" Square Tubing 2'2"
4 Pieces of 5/8" Sucker Rod 5'3"
4 Pieces of 1/2" Pipe 10' Long
4 Pieces of 5/8" Rod 1' Long



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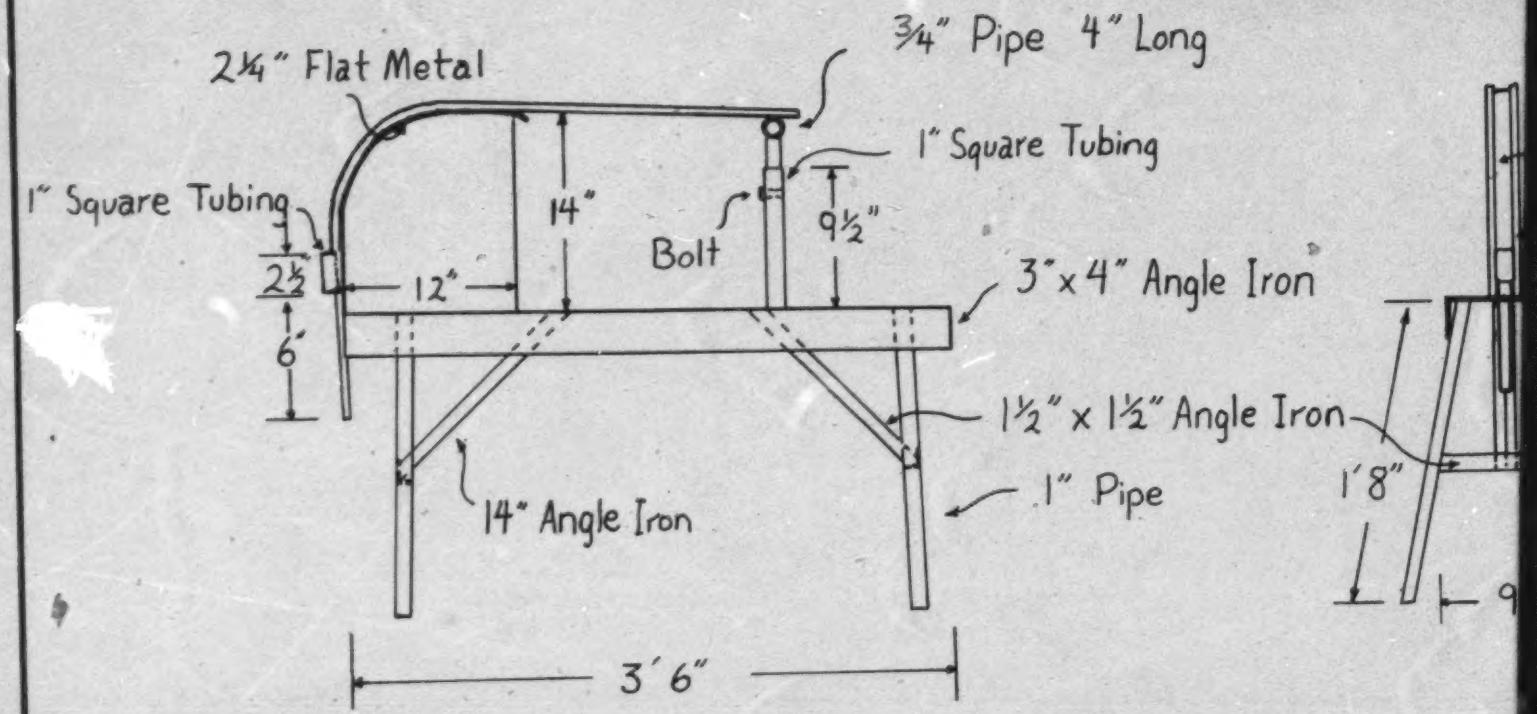
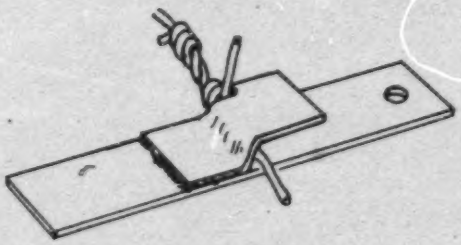
Stillwater, Oklahoma

Courtesy of Perkins
Vocational Agriculture Department

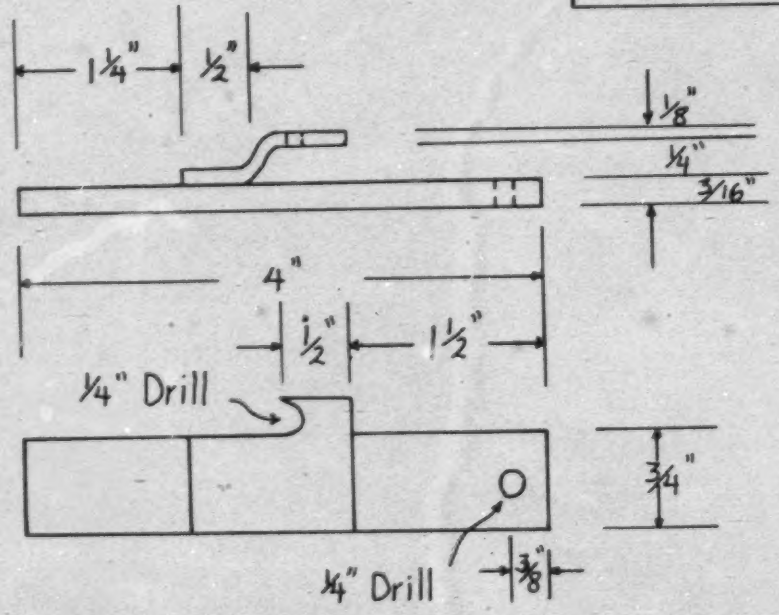


Courtesy of Newkirk
Vocational Agriculture Department



BILL OF MATERIAL

1 Piece of 3/16" Flat Metal 3/4" and 4" Long
1 Piece of 1/8" Flat Metal 1" Wide and 1 1/4" Long



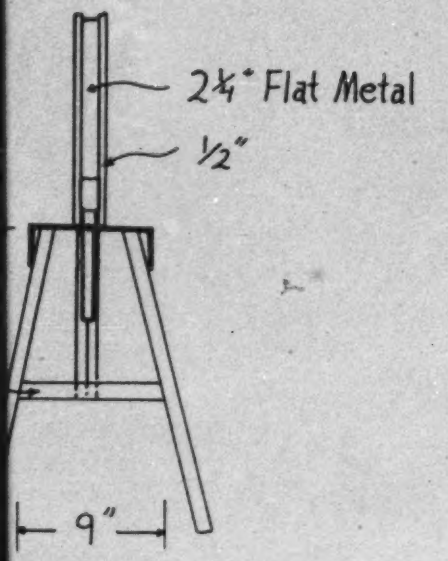
Wire Splicer

Scale: 3/4"=1"

railer Bow Bender

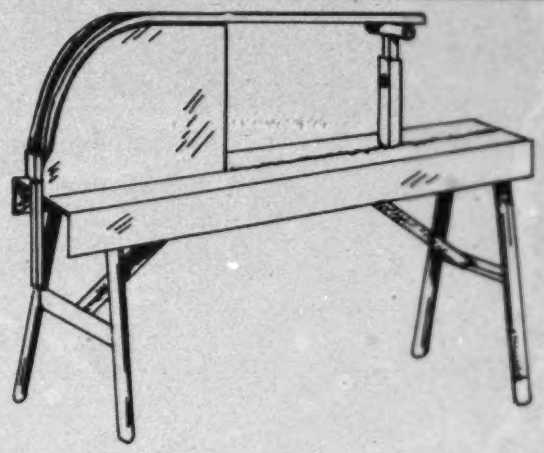
06:6

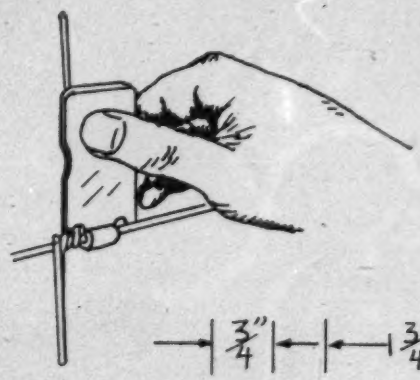
Scale: 1"=1'



BILL OF MATERIAL

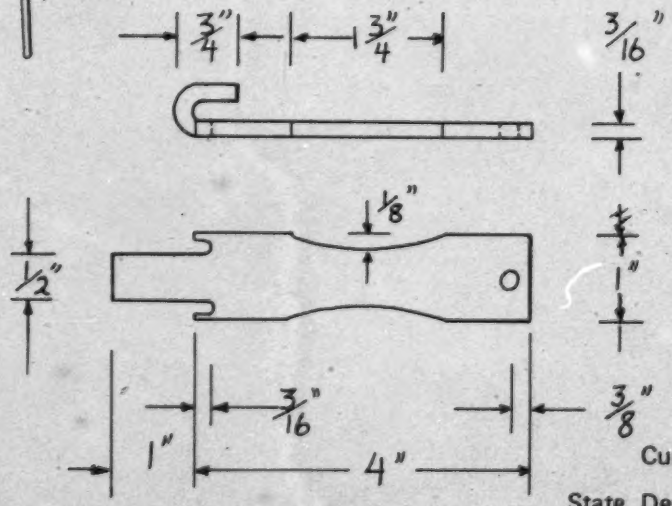
2 Pieces of 3" X 4" Angle Iron 3'6" Long
2 Pieces of 1 1/2" X 1 1/2" Angle Iron 14" Long
2 Pieces of 1 1/2" X 1 1/2" Angle Iron 9" Long
4 Pieces of 1" Pipe 1'8" Long
1 Piece of 1 1/4" Square Tubing 9 1/2" Long
1 Piece of 1" Square Tubing 5" Long
1 Piece of 3/4" Pipe 4" Long
1 Piece of Flat Metal 12" X 14"
1 Piece of Strap Metal 2 1/4" Wide X 22" Long
1 Piece of 1" Square Tubing 2 1/2" Long
1 Piece of 1" Rod 8" Long
2 Pieces of 1/2" Square Tubing 22" Long





BILL OF MATERIAL

1 Piece of 3/16" Flat Metal 1" Wide and 5" Long



Wire Bender

Scale: 1/2"=1"

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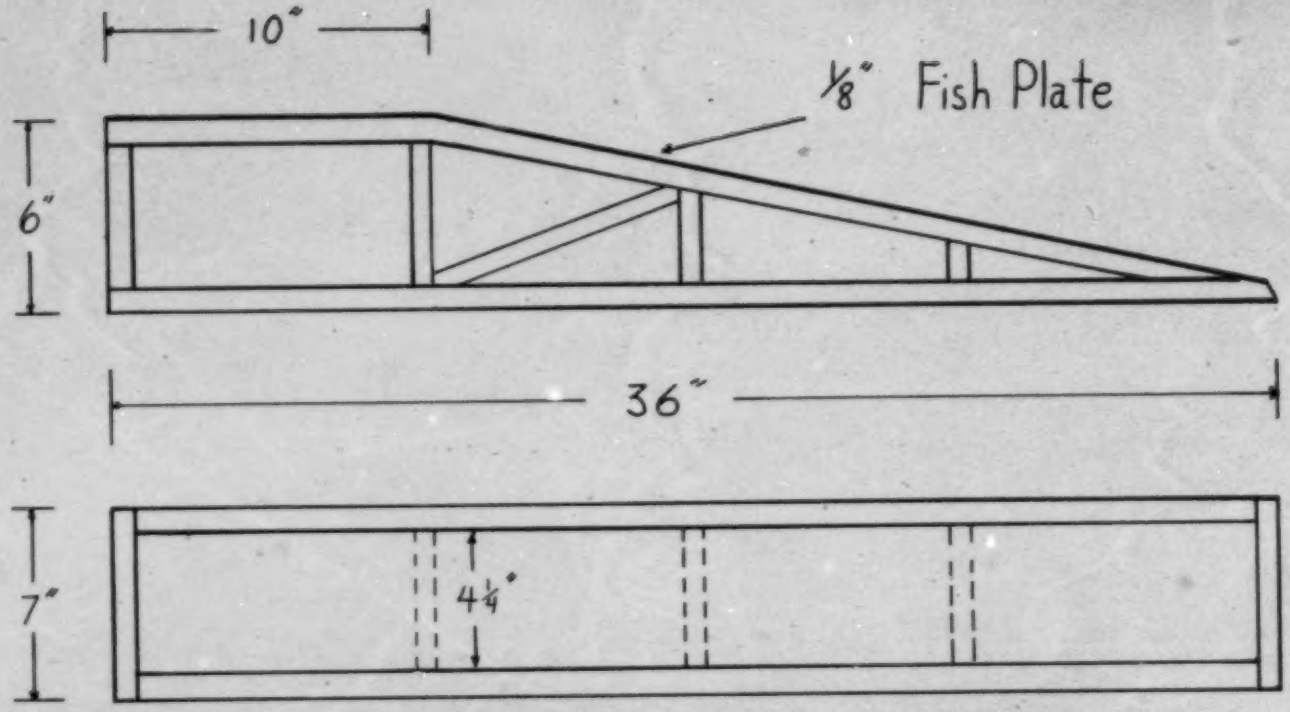
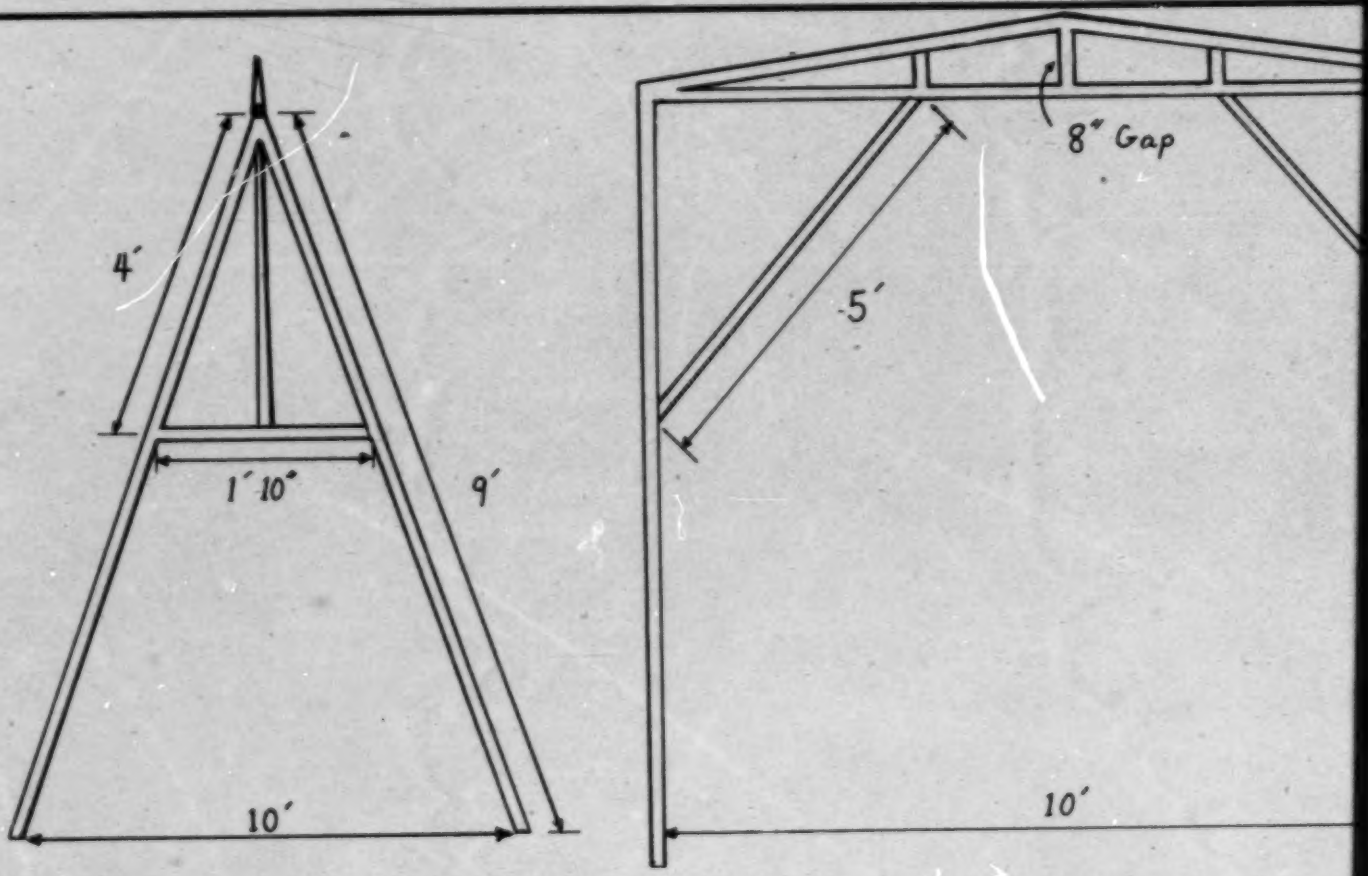


Courtesy of Carter
Vocational Agriculture Department



Courtesy of Jet-Nash
Vocational Agriculture Department

Trailer Jack Ramp

06:7

Scale: 3/16"=1"

BILL OF MATERIAL
1 Piece of 1/8" Fish Plate 7" X 36"
1 Piece of 3/4" Pipe 18'8" Long
3 Pieces of 1 1/4" Pipe 65" Long
4 Pieces of 1" Pipe 14" Long

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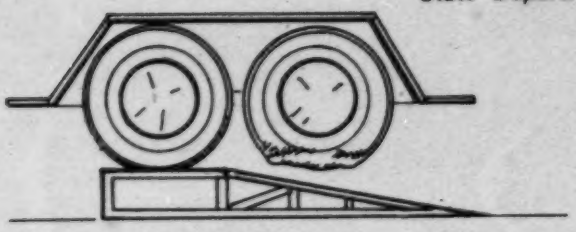
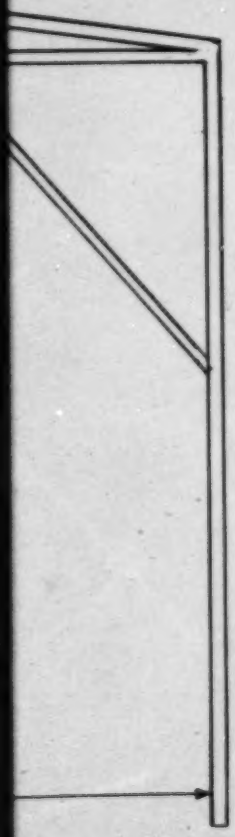
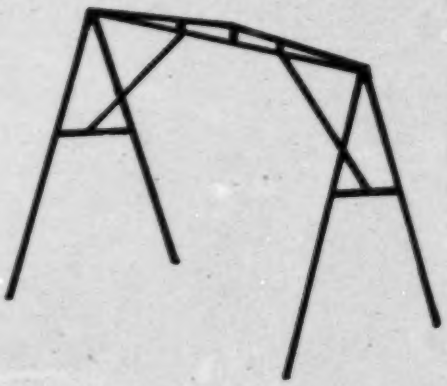
Stillwater, Oklahoma





A-Frame

Scale: 1/2"= 1'



BILL OF MATERIAL
4 Pieces of 2" Pipe 9' Long
1 Piece of 2" Pipe 10' Long
2 Pieces of 2" Pipe 5'6" Long
1 Piece of 2" Pipe 8" Long
2 Pieces of 2" Pipe 3" Long
2 Pieces of 2" Pipe 1'10" Long
2 Pieces of 2" Pipe 5' Long

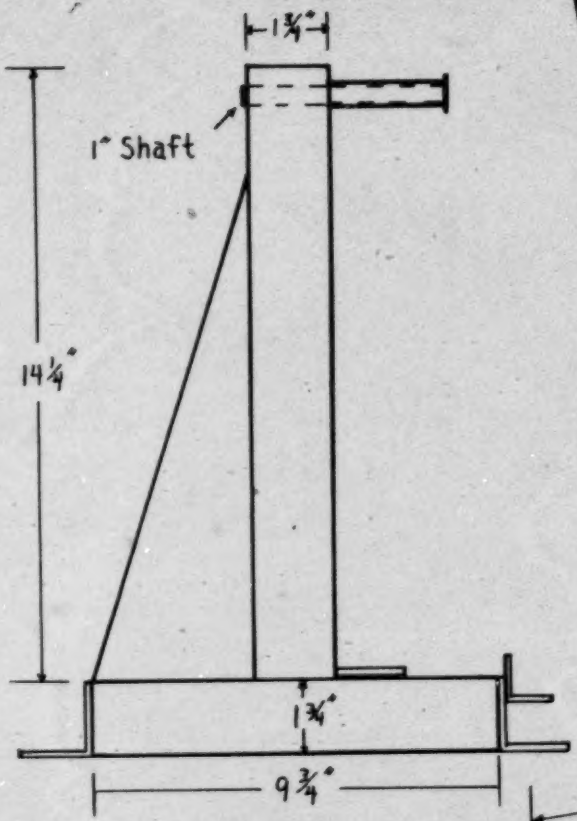
Bob Rea

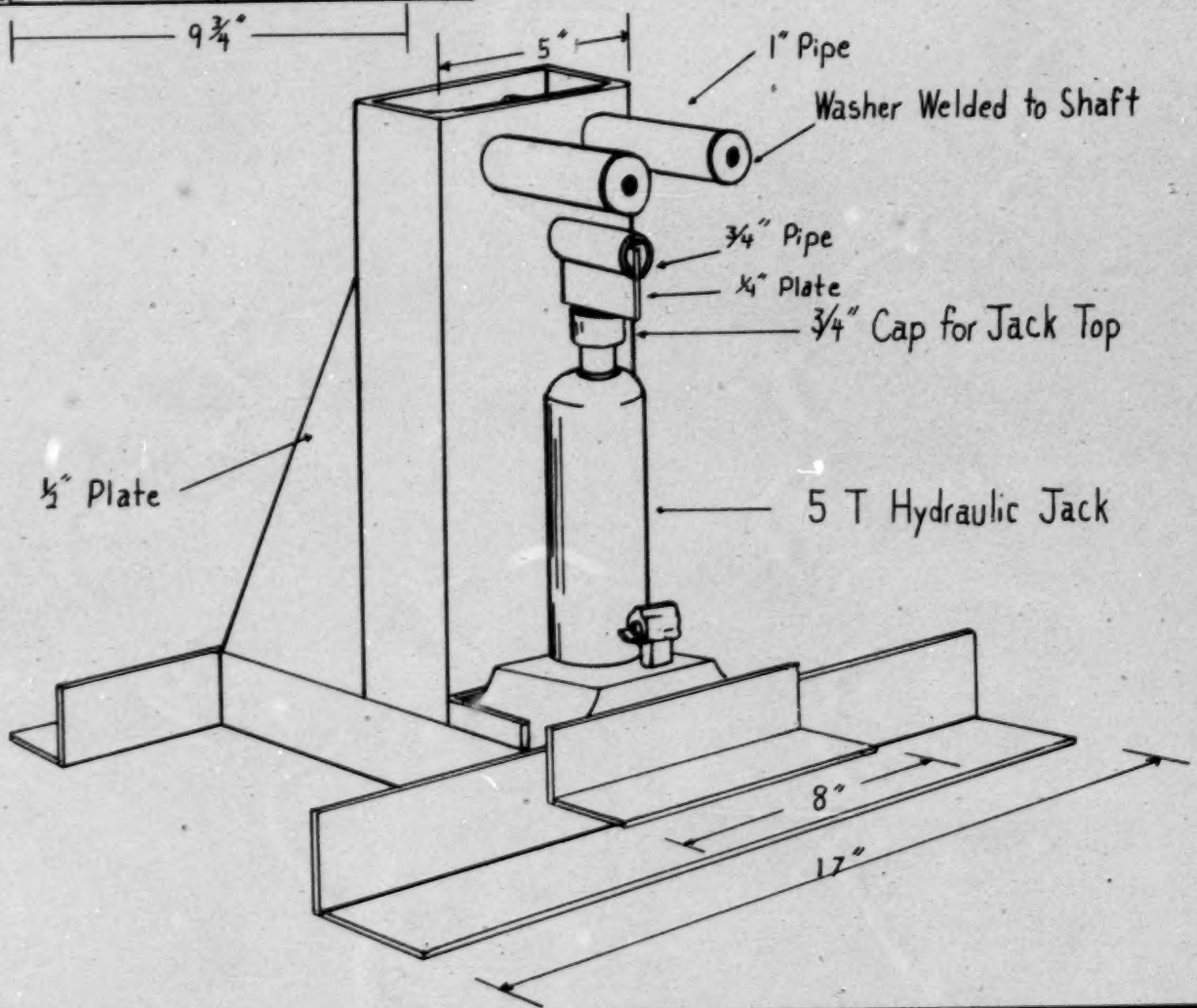
Weld Tester and Breaker

Scale: 1/4"=1"

BILL OF MATERIALS

1 5T Hydraulic Jack
2 Pieces 1" Pipe 5" Long
2 Washers
1 Piece of 1 3/4" X 3/4" Cap
2 Pieces of 1" Solid Shaft 7" Long
2 Pieces of 1/2" Plate 12" X 2 1/2"
1 Piece of 3/4" Pipe 4" Long
1 Piece of 1/4" Plate 4" X 2"
2 Pieces of 1 1/2" X 1/3" Angle Iron 17" Long
1 Piece of 1 1/4" X 3/16" Angle Iron 8" Long
1 Piece of 5" X 1 3/4" Channel Iron 9 3/4" Long
1 Piece of 5" X 1 3/4" Channel Iron 14 1/4" Long
1 Piece of 1/4" Back Plate 4" X 5"





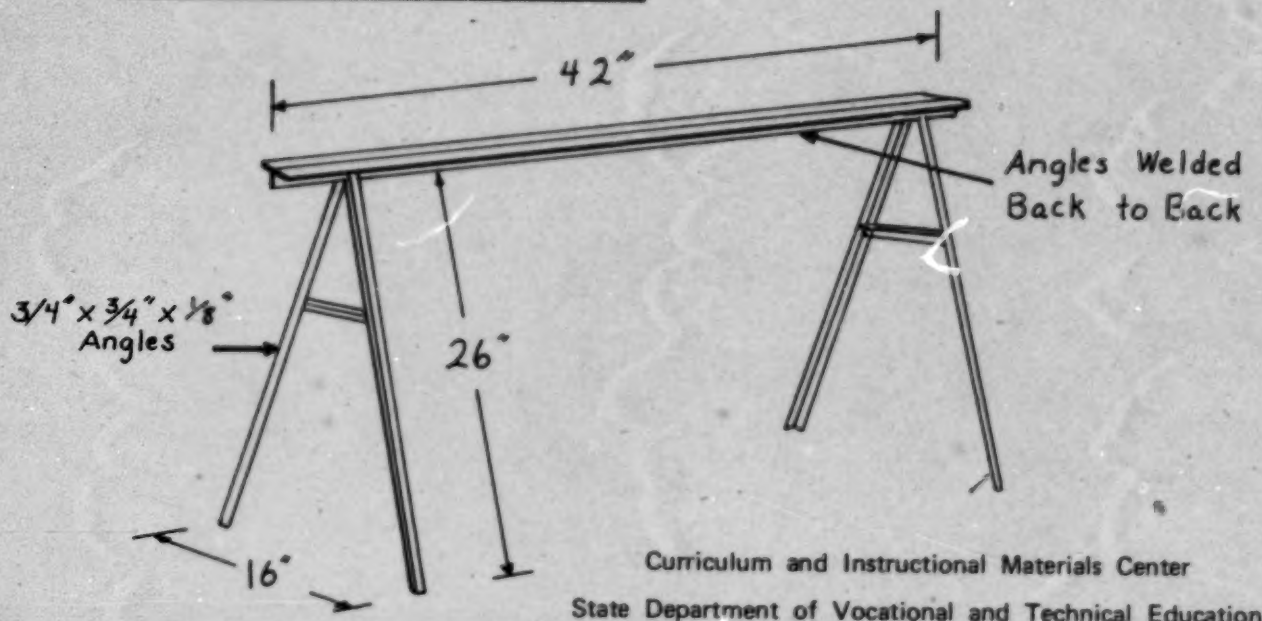
Angle Iron Saw Horse

Scale: 3/32"=1"

08:8

BILL OF MATERIAL

18' of 3/4" X 3/4" X 1/8" Angle Iron



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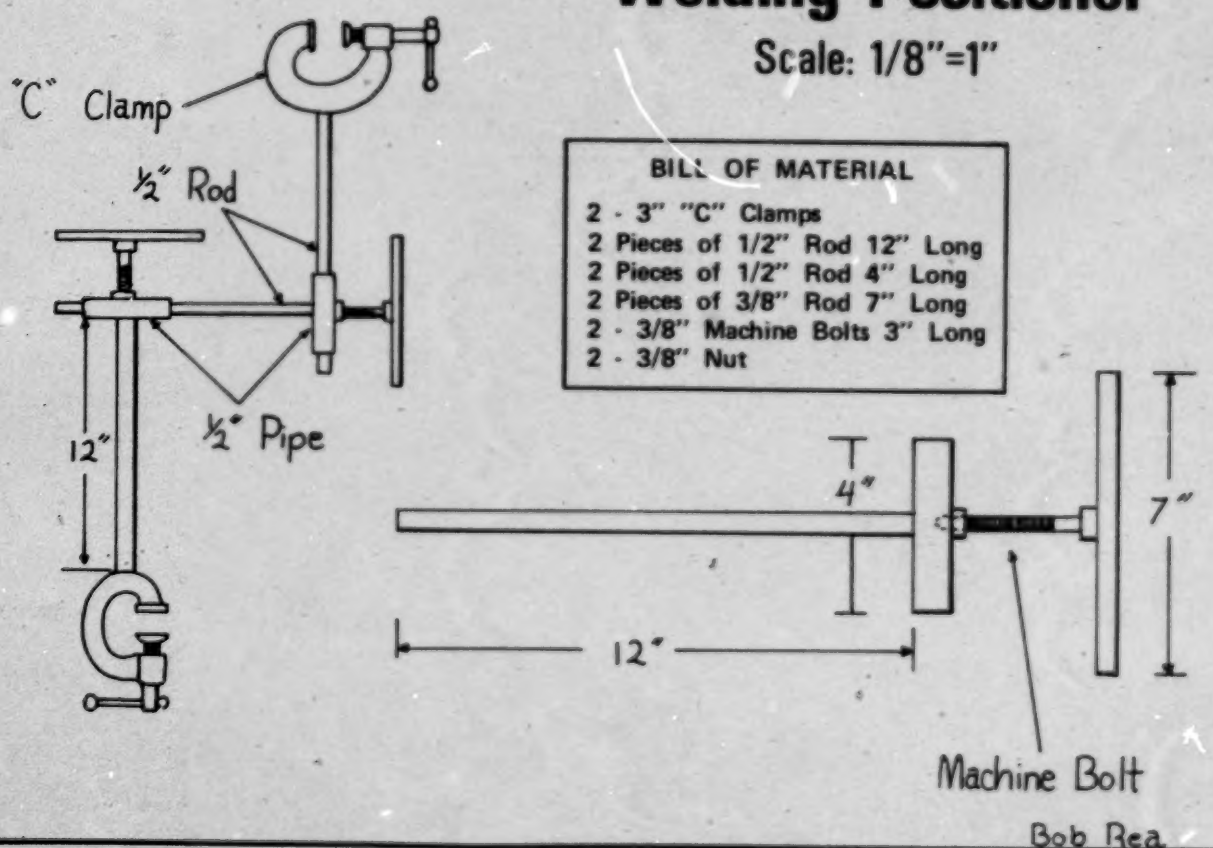
Stillwater, Oklahoma

Welding Positioner

Scale: 1/8"=1"

BILL OF MATERIAL

2 - 3" "C" Clamps
2 Pieces of 1/2" Rod 12" Long
2 Pieces of 1/2" Rod 4" Long
2 Pieces of 3/8" Rod 7" Long
2 - 3/8" Machine Bolts 3" Long
2 - 3/8" Nut



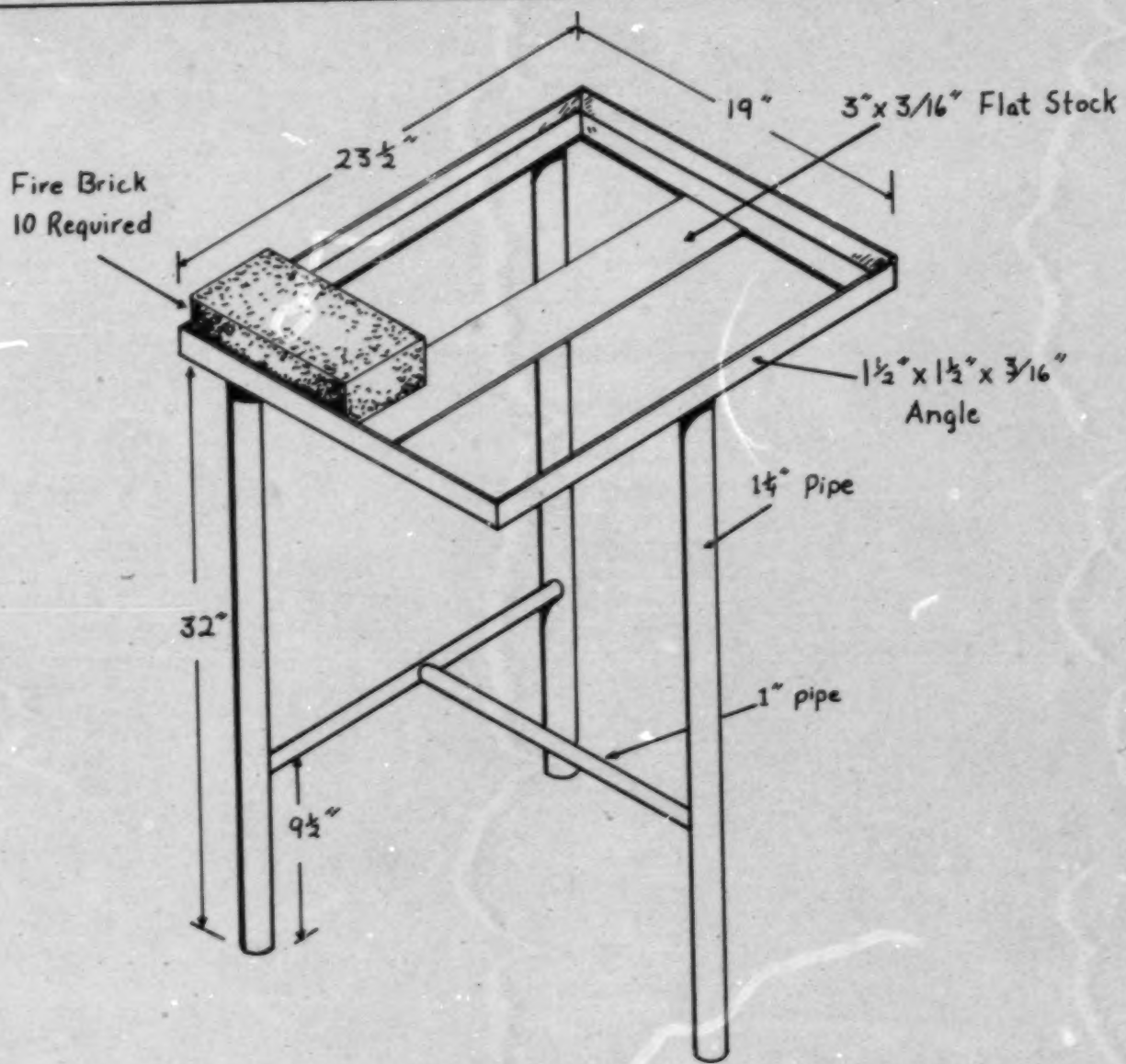
Bob Rea

Acetylene Welding Table

Scale: 1/8"=1"

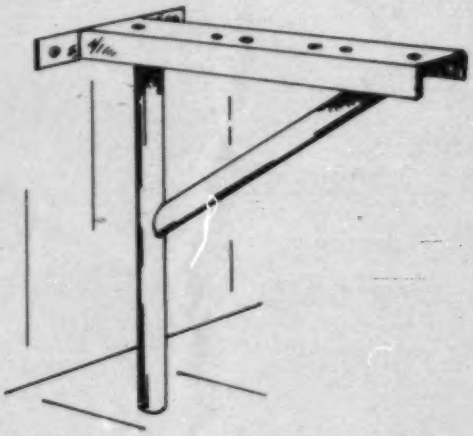
BILL OF MATERIAL

1 Piece of 3/8" X 1 1/2" X 12" Strap Iron	3 Pieces of 1 1/4" Pipe 32" Long
1 Piece of 3" Channel Iron 28" Long	2 Pieces of 1" Pipe 19" Long
1 Piece of 2" Pipe 58" Long	1 Piece of 3" X 3/16" Flat Stock 20 1/2" Long



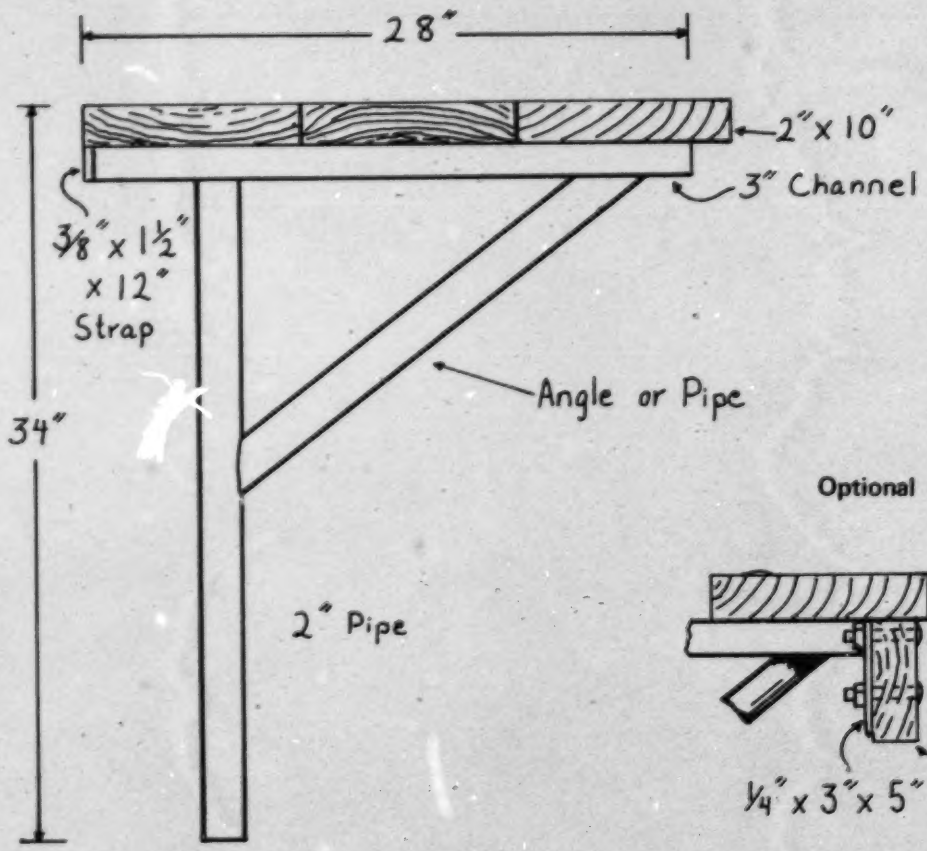
Workbench

Scale: 1/8"=1"

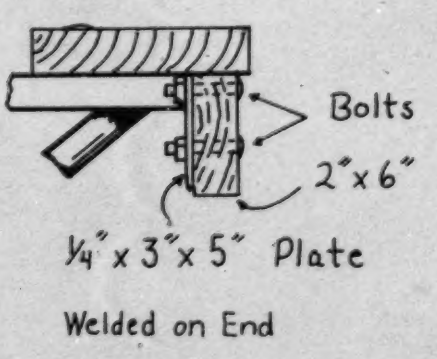


BILL OF MATERIAL

2 Pieces of 1 1/2" X 3/16" Angle 19" Long
2 Pieces of 1 1/2" X 3/16" Angle 23 1/2" Long
10 Fire Bricks



Optional Front Detail



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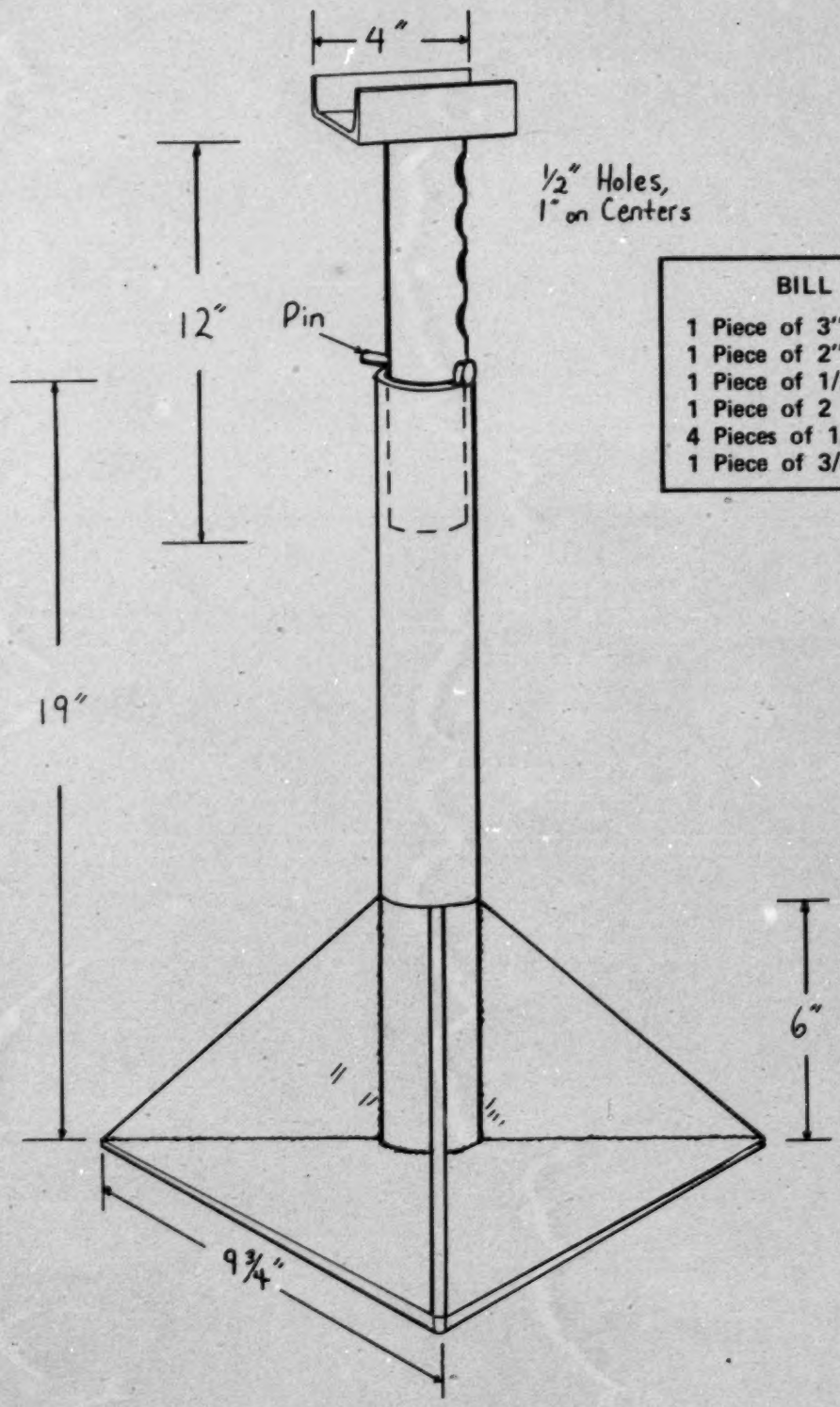
Stillwater, Oklahoma

Bob Rea

Adjustable Tractor Holding Jack

Scale: 1/4"=1"

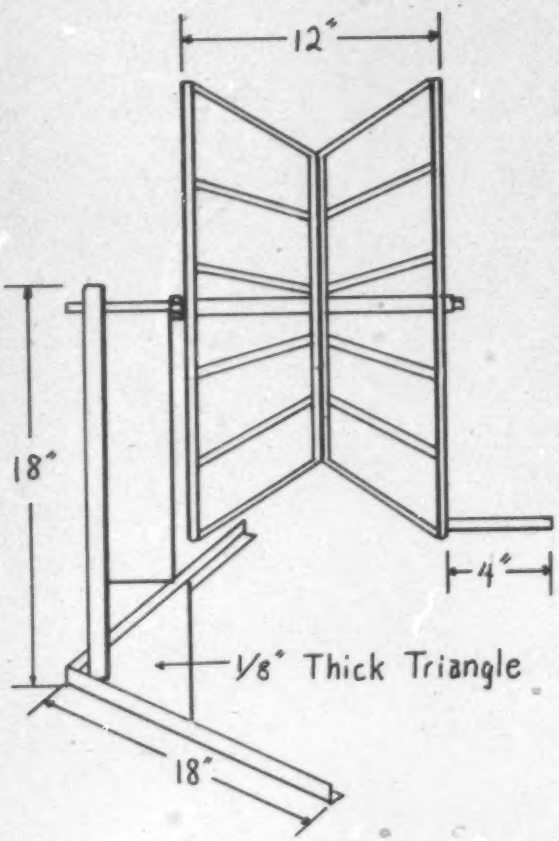


BILL OF MATERIALS

1 Piece of 3" Channel Iron 4" Long
1 Piece of 2" Pipe 12" Long
1 Piece of 1/2" Pin 5" Long
1 Piece of 2 1/2" Pipe 19" Long
4 Pieces of 1/4" Plate 6"X 6"
1 Piece of 3/8" Plate 9 3/4" X 9 3/4"

Hose Reel

Scale: 1/8" =1"



BILL OF MATERIALS

2 Pieces of 1" X 1/8" Strap 21" Long
1 Piece of 1/8" Plate 3" X 13"
1 Piece of 3/4" Pipe 18" Long
1 Piece of 3/8" Rod 18" Long
2 Pieces of 3/4" X 1/8" Angle Iron 18" Long
1 Piece of 5/8" Rod 4" Long
1 Piece of 1/2" Pipe 12" Long
1/4" Rod for Rims
3/16" Rod for Spokes
2 Nuts

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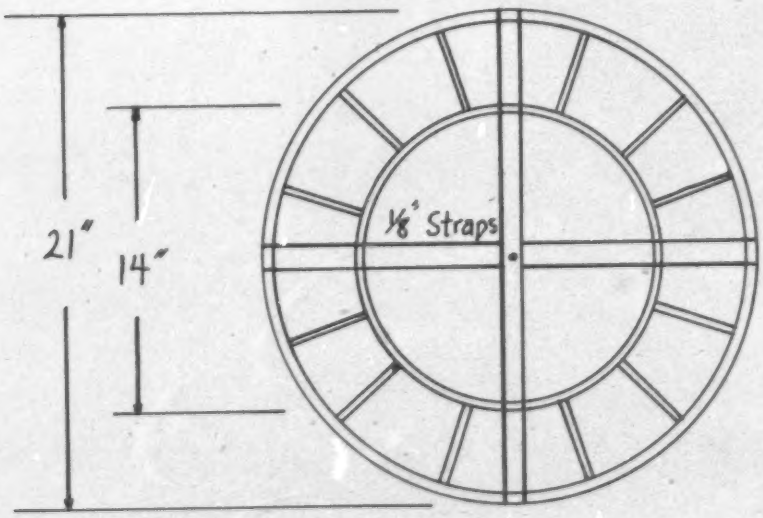
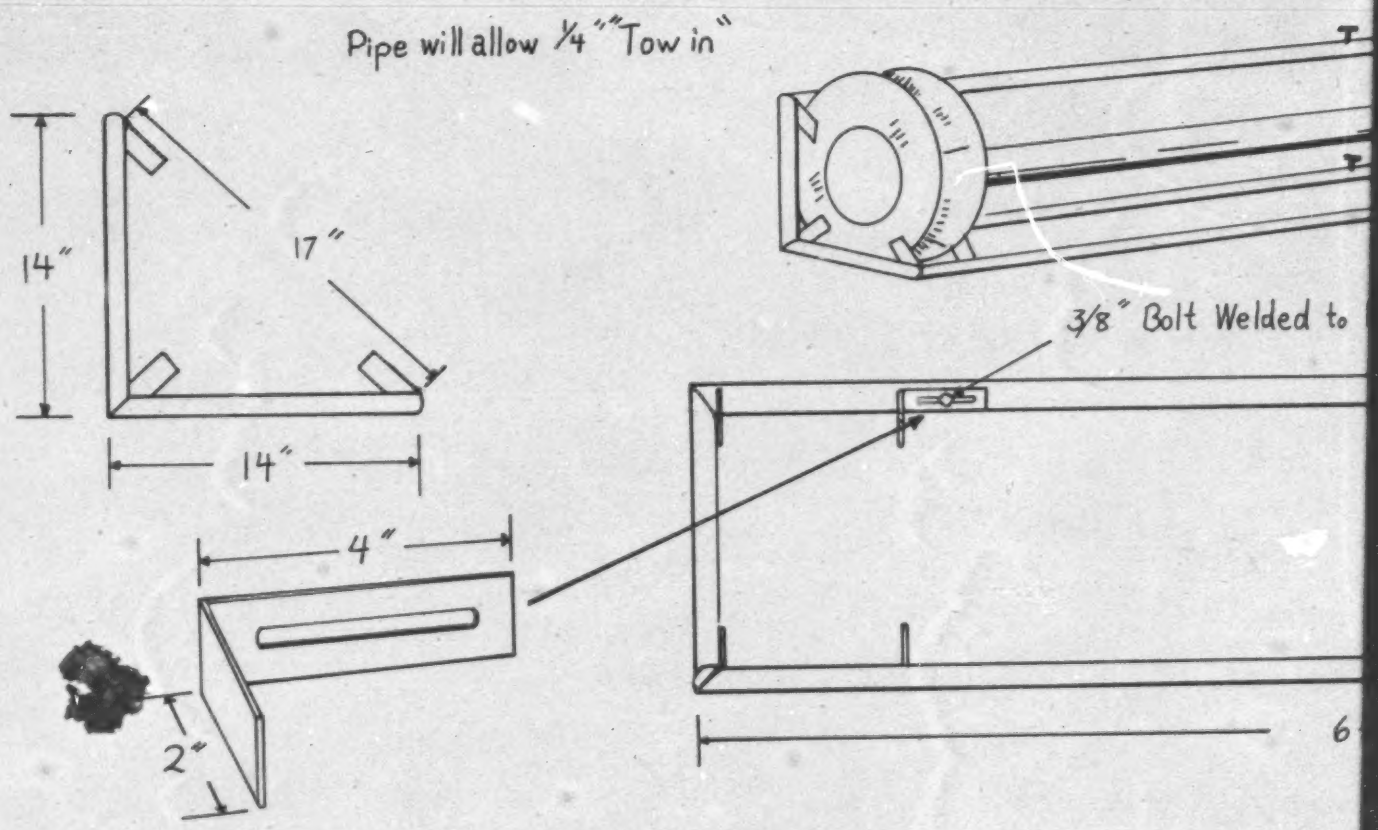
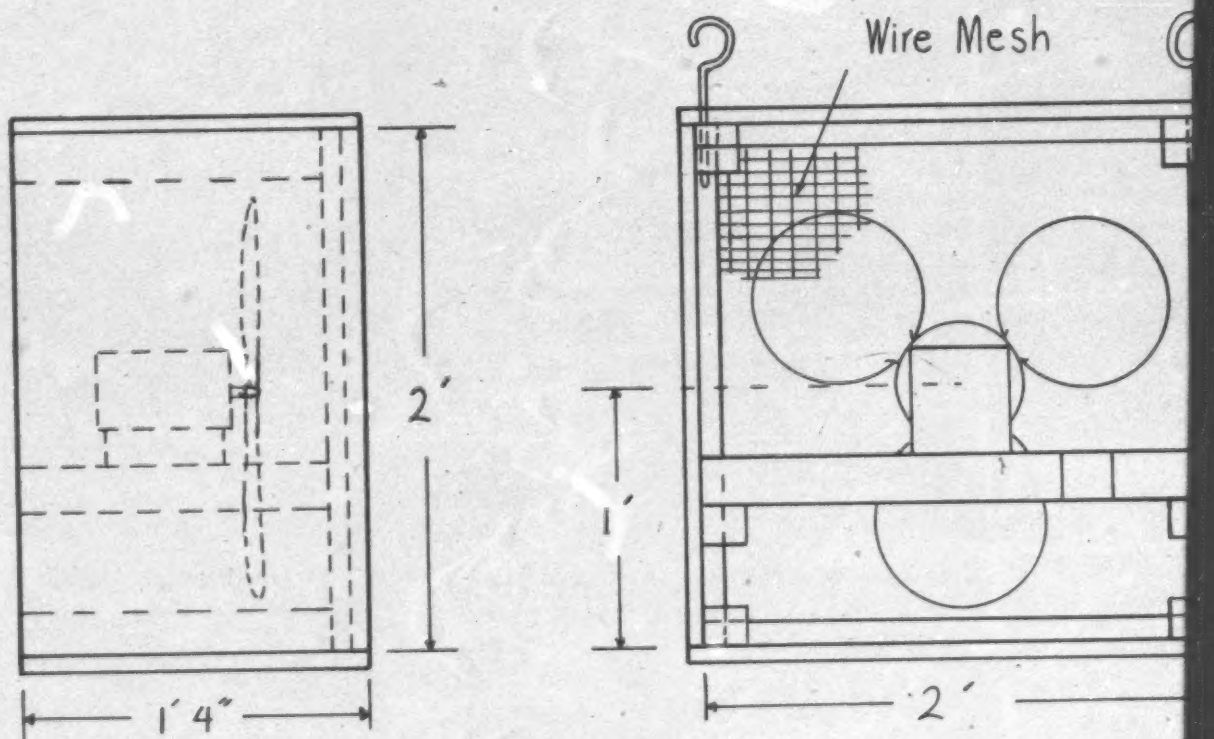


Bob Bea

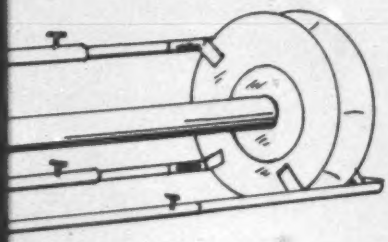




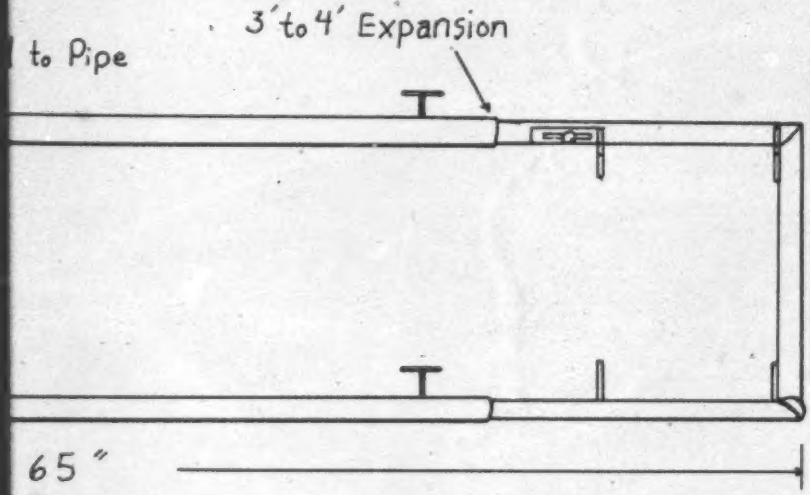
Courtesy of Altus
Vocational Agriculture Department

Jig for Welding Trailer Hubs and Axles

06:11



Scale: 1/8"=1"

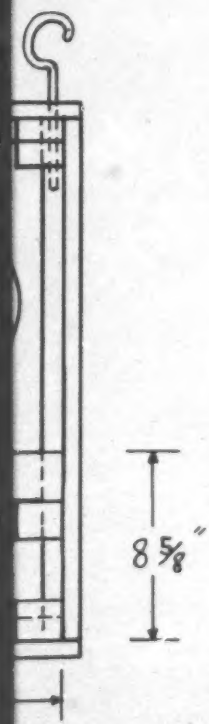


BILL OF MATERIALS

- 3 Pieces of 1 1/4" Pipe 65" Long
- 3 Pieces of 1" Pipe 4' Long
- 4 Pieces of 1 1/4" Pipe 14" Long
- 6 3/8" Bolts
- 6 Pieces of 3/8" Strap 6" Long
- 6 Pieces of 3/8" Strap 3" Long

Livestock Fan

Scale: 1/8"=1"



BILL OF MATERIALS

- 1 13" Fan Blade
- 2 Pieces of 3/4" Plywood 24" X 16"
- 2 Pieces of 3/4" Plywood 22 1/2" X 16"
- 6 Pieces of 1 3/4" Bracing 16" Long
- 1 Fan Support 2" X 6" X 22 1/2"
- 2 Pieces of 1" X 3/4" Framing 22 1/2" Long
- 2 Pieces of 1" X 3/4" Framing 20" Long
- 2 Pieces of 1/4" Quarter Round 22 1/2" Long
- 2 Pieces of 1/4" Quarter Round 20" Long
- 1 Electrical Box
- 1 Switch
- 1 Cover
- 6' of 3 Wire Electrical Cord
- Wire Mesh 24" X 22 1/2"

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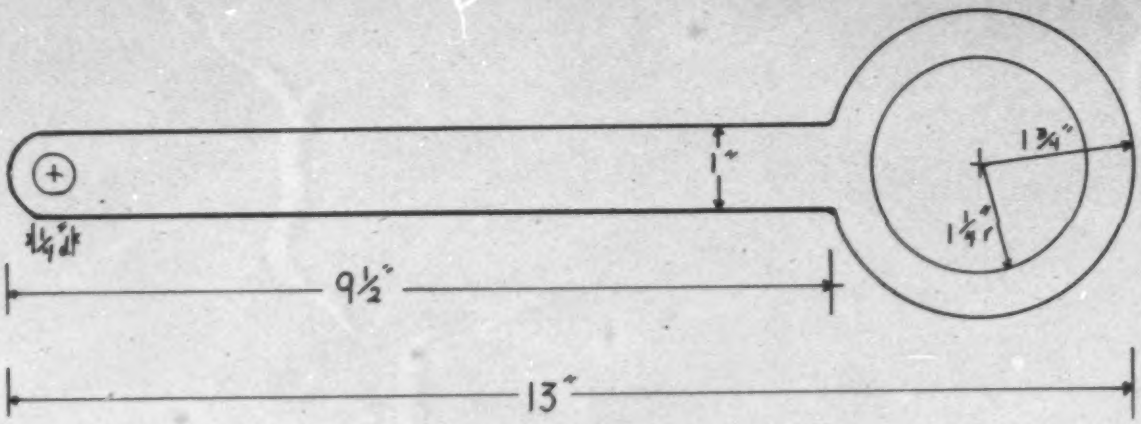
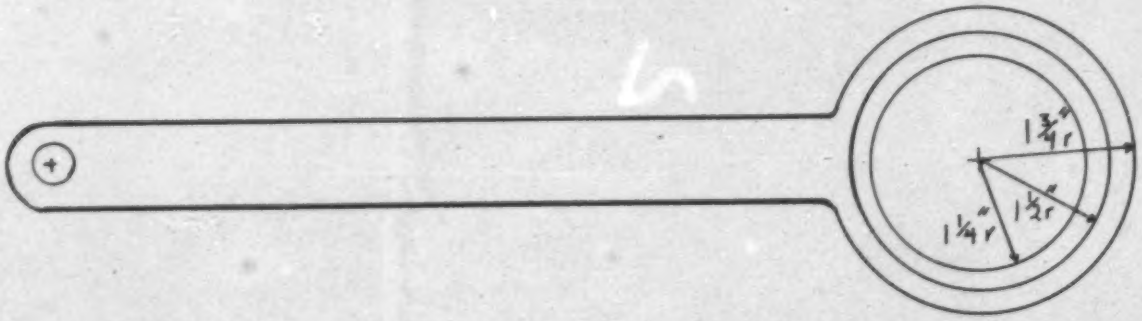
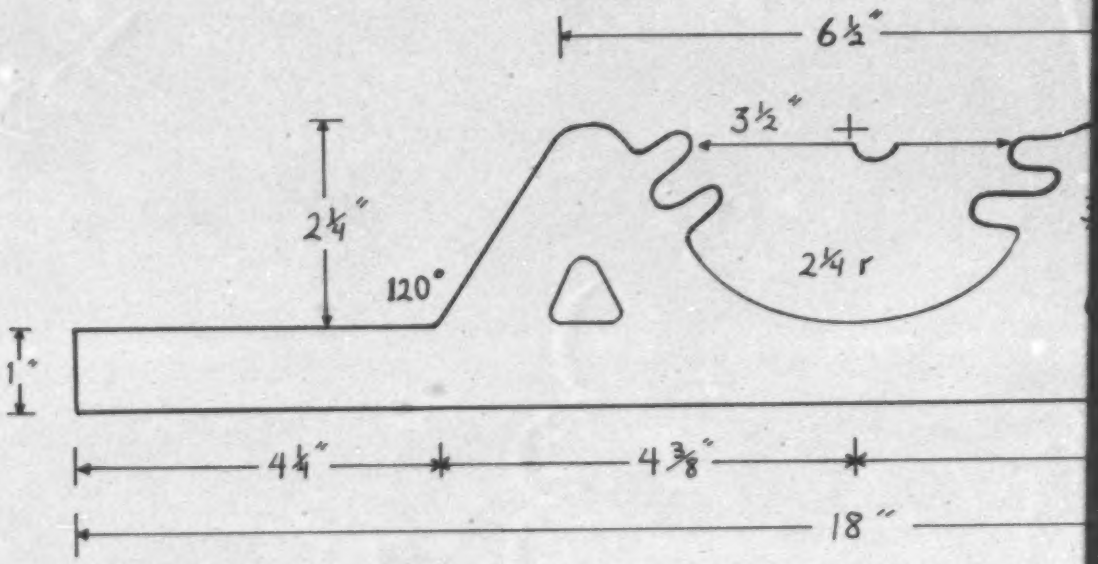
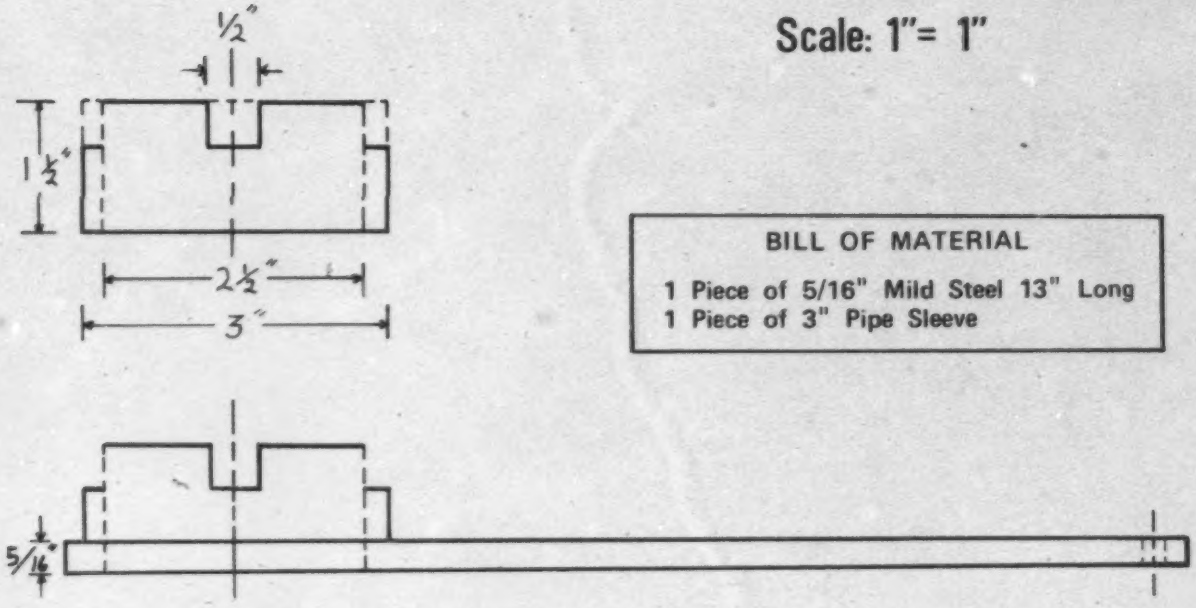

1"
1¾"
1¼"r
9½"
13"


1¾"r
1¼"r
1½"r


6½"
3½"
2¼"
120°
2¼ r
1"
4¼"
4⅜"
18"

Fly Wheel Wrench

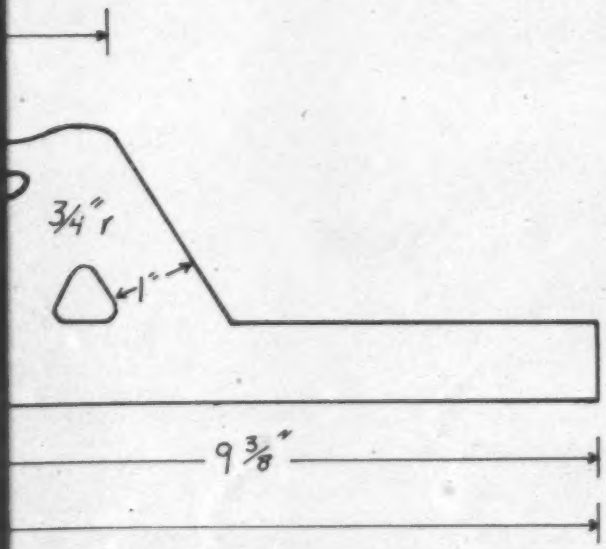
Scale: 1"= 1"



BILL OF MATERIAL
1 Piece of 5/16" Mild Steel 13" Long
1 Piece of 3" Pipe Sleeve

Fly Wheel Holder

Scale:1/2"= 1"



BILL OF MATERIAL
1 Piece of 5/16" Mild Steel 18" Long

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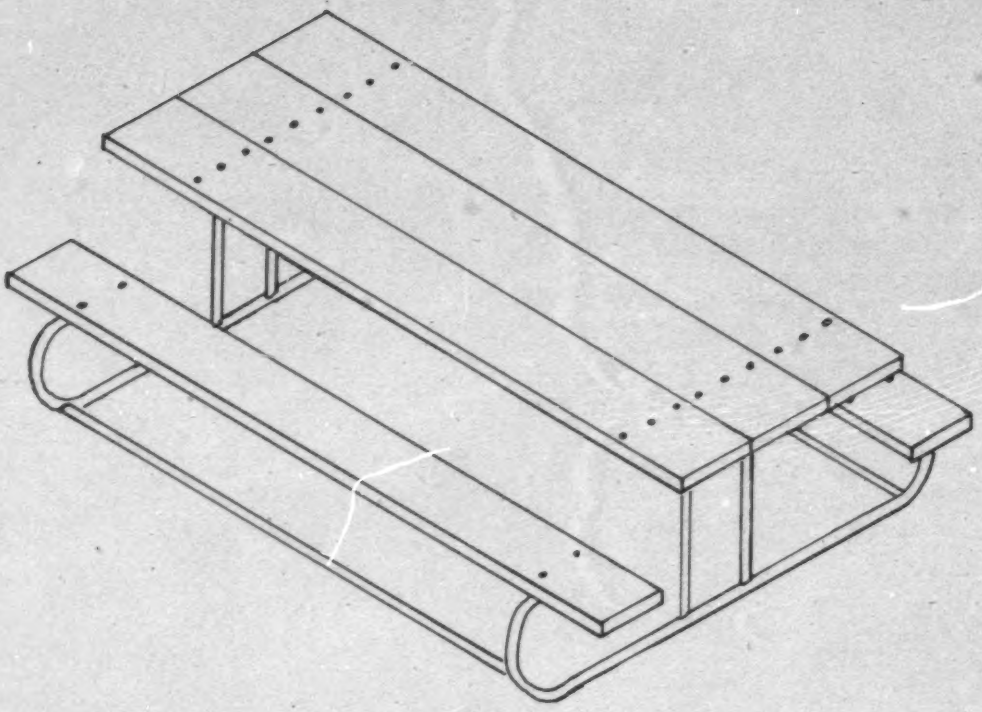
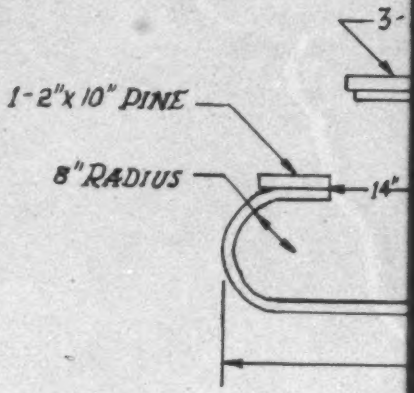
Picnic Table

Scale: ½" = 1'



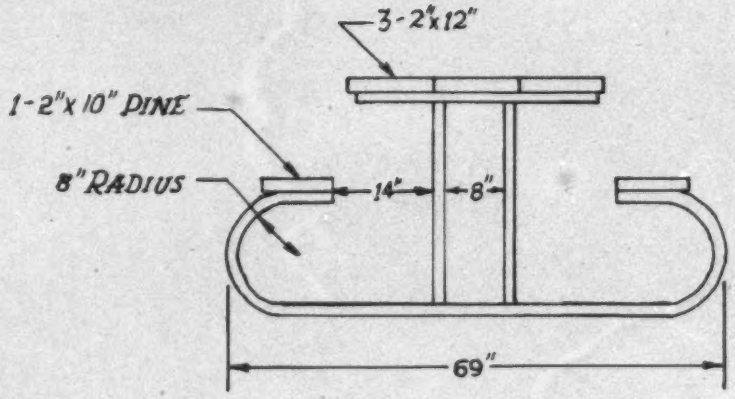
BIL
4- PIECE
2- PIECE
2- PIECE
2- PIECE
3- BOAR
2- BOAR
26- BOLT



c Table

½" = 1'

BILL OF MATERIAL
4- PIECES OF 1½" PIPE 30¼" LONG
2- PIECES OF 1½" PIPE 5'10¼" LONG
2- PIECES OF 1¼" PIPE 5'9" LONG
2- PIECES OF 1¼" PIPE 2'10" LONG
3- BOARDS 2"x10"x8'
2- BOARDS 2"x10"x6'
26- BOLTS & NUTS 3½"x¼"



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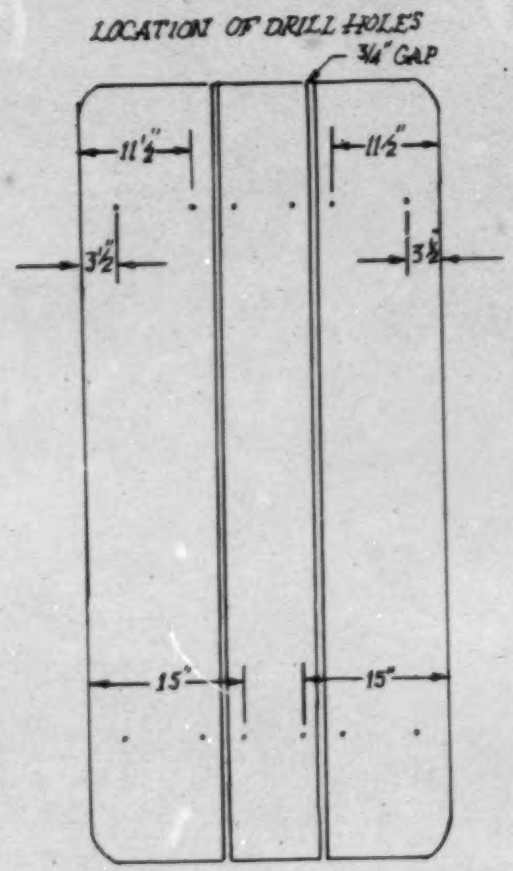
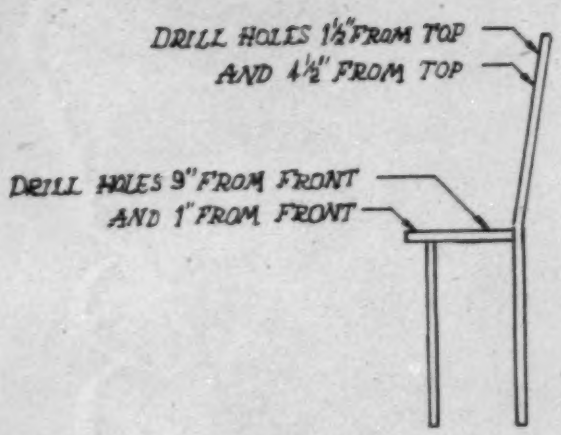
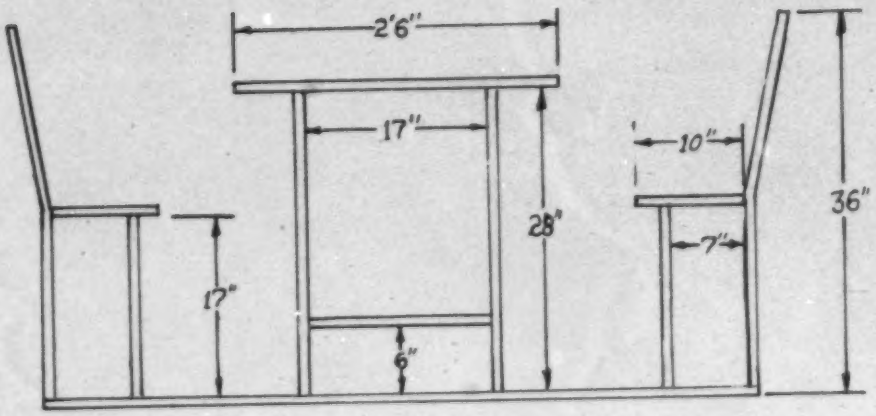
DWN BY: JOHN McEACHERN

Picnic Table

Scale: 3/4" = 1'







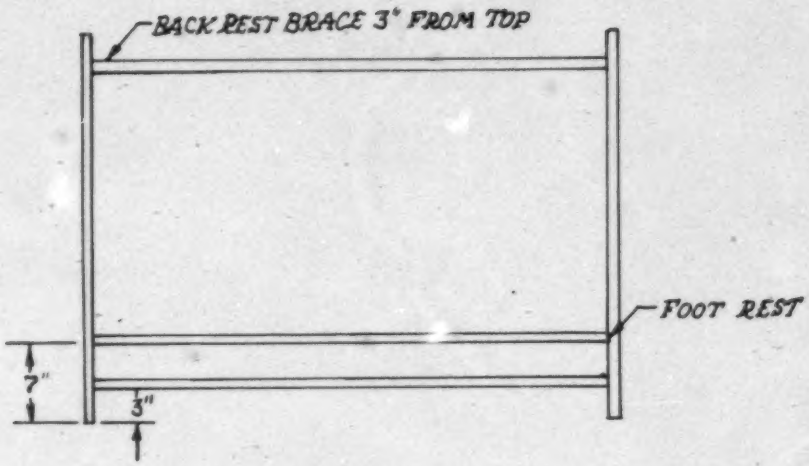
Courtesy of Watonga
ocational Agriculture Department

Table

3/4" = 1'

BILL OF MATERIALS

2 PIECES OF 1" SQ. TUBING 66" LONG
4 PIECES OF 1" SQ TUBING 28" LONG
6 PIECES OF 1" SQ TUBING 17" LONG
4 PIECES OF 1" SQ TUBING 36" LONG
2 PIECES OF 1" SQ TUBING 30" LONG
6 PIECES OF 1" SQ TUBING 4' LONG
4-2"x12" BOARDS 6' LONG
1-2"x8" BOARD 6' LONG
2-1"x8" BOARDS 6' LONG



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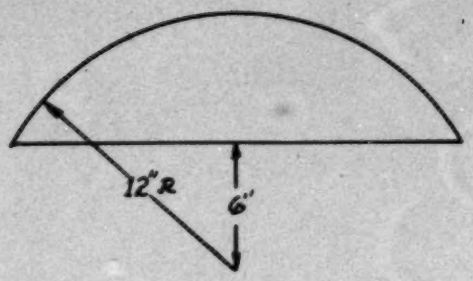
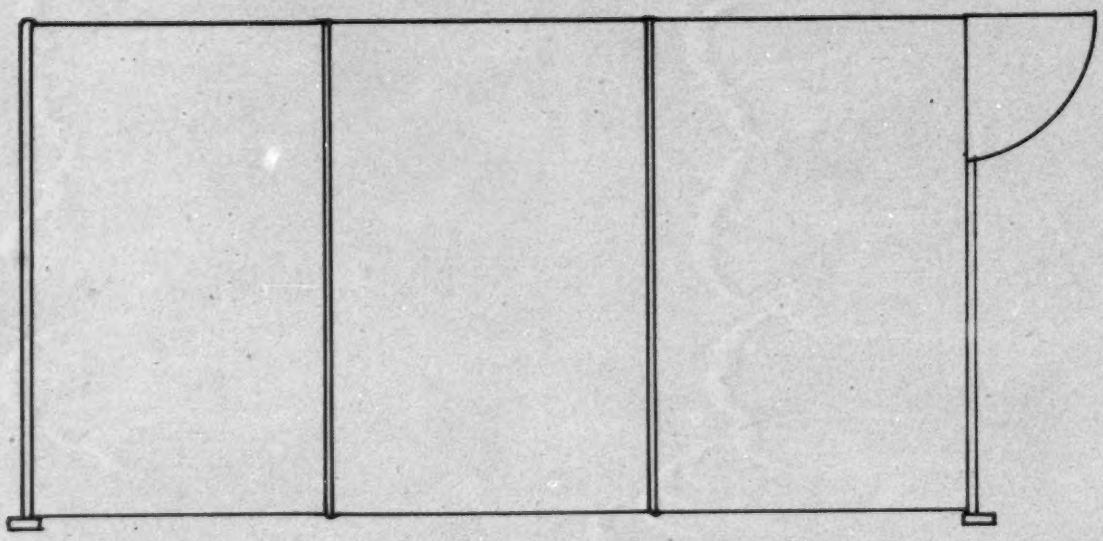
DWN BY: JOHN McEACHERN

Barrel Dog Hou

Scale 1½" = 1'



NOTE: LIP MADE OF LIGHT GUAGE SHEETMETAL OR ½ TOP OF BARREL



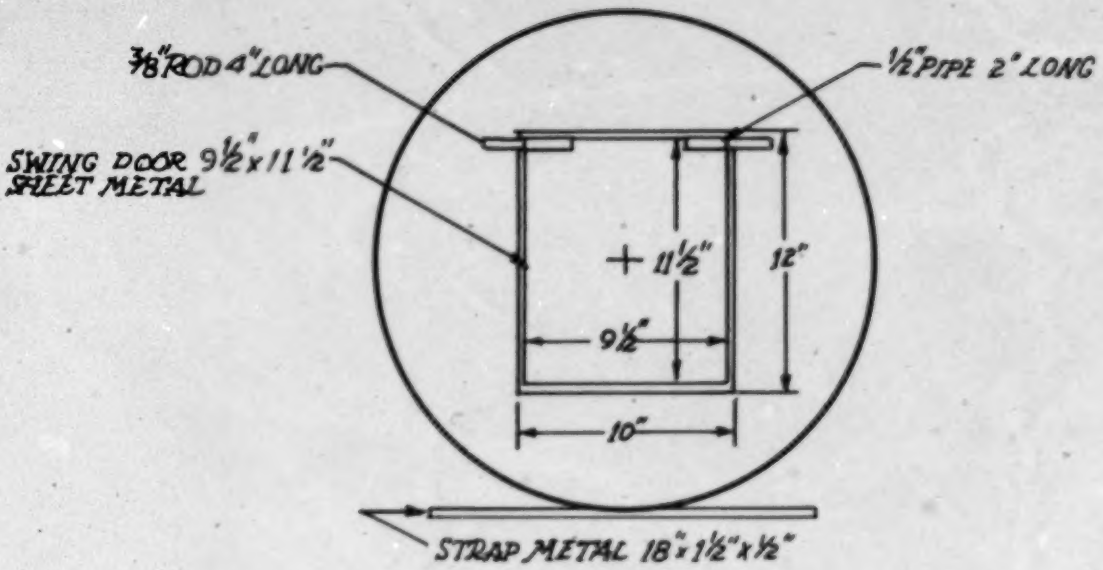
NOTE: ROLL A PIECE OF CARDBOARD 30"x48" AND PLACE INSIDE BARREL ADD COTTON SEED HULLS FOR BEDDING

Courtesy of Wellston
Vocational Agriculture Department

g House

½" = 1'

BILL OF MATERIAL
1-55 GALLON BARREL
1 PIECE OF SHEET METAL 9½" x 11½"
1 PIECE OF ½" PIPE 2" LONG
1 PIECE OF ⅜" ROD 4" LONG
1 PIECE OF STRAP METAL 18" x 1½" x ½"



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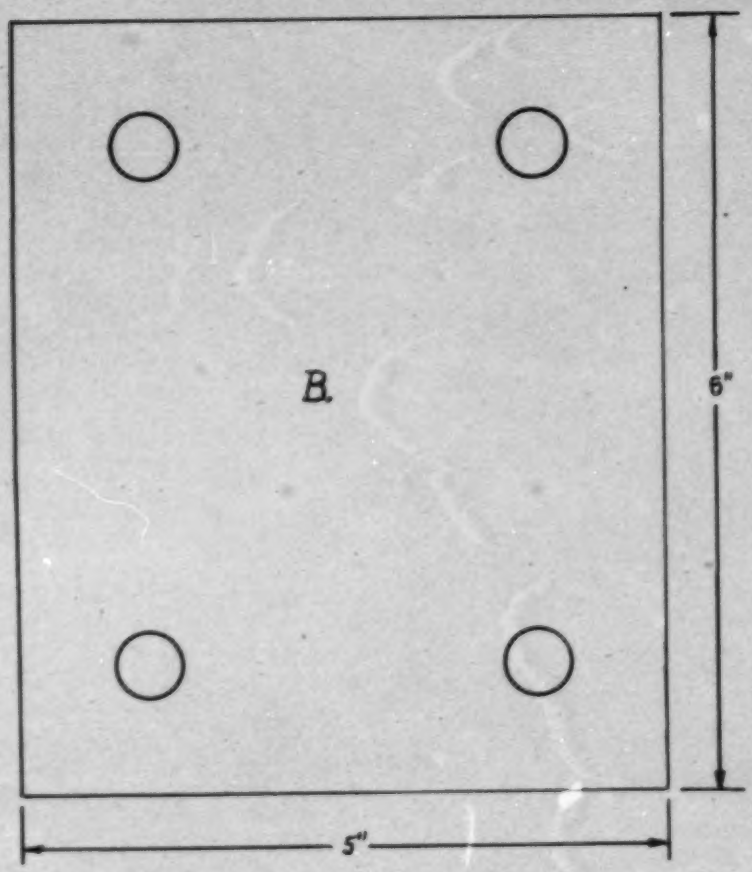
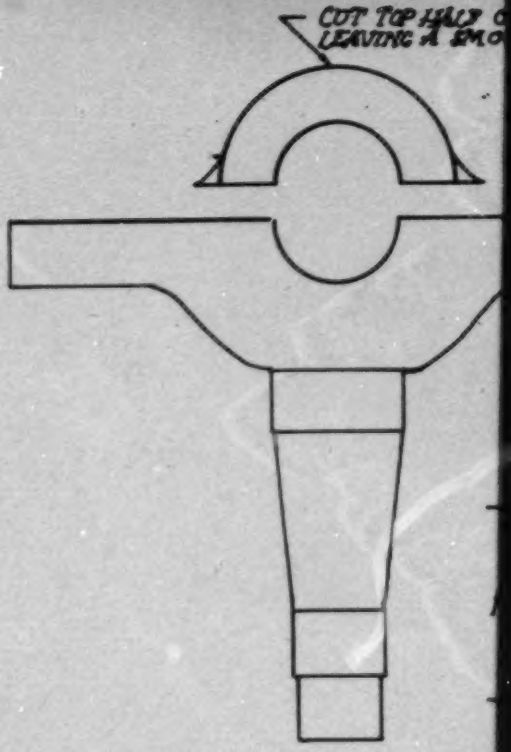
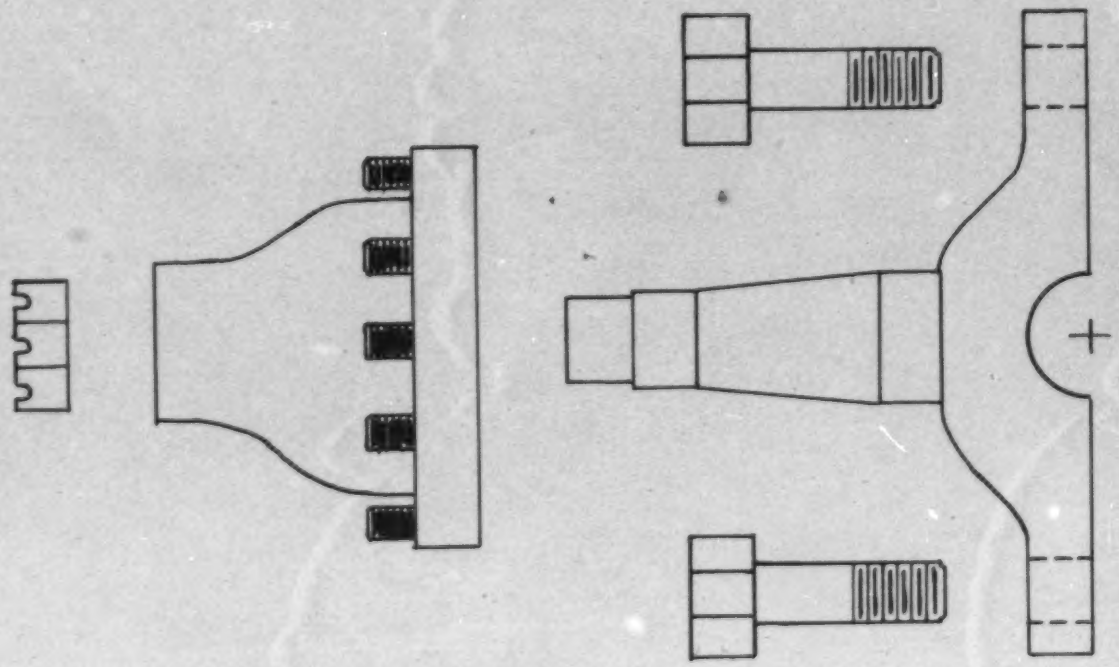
DWN BY: JOHN McEACHERN

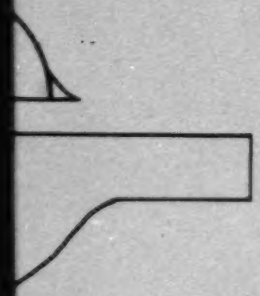






Courtesy of Holdenville
Vocational Agriculture Department

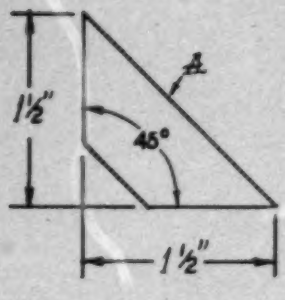
HALF OF CIRCLE OFF
A SMOOTH SURFACE

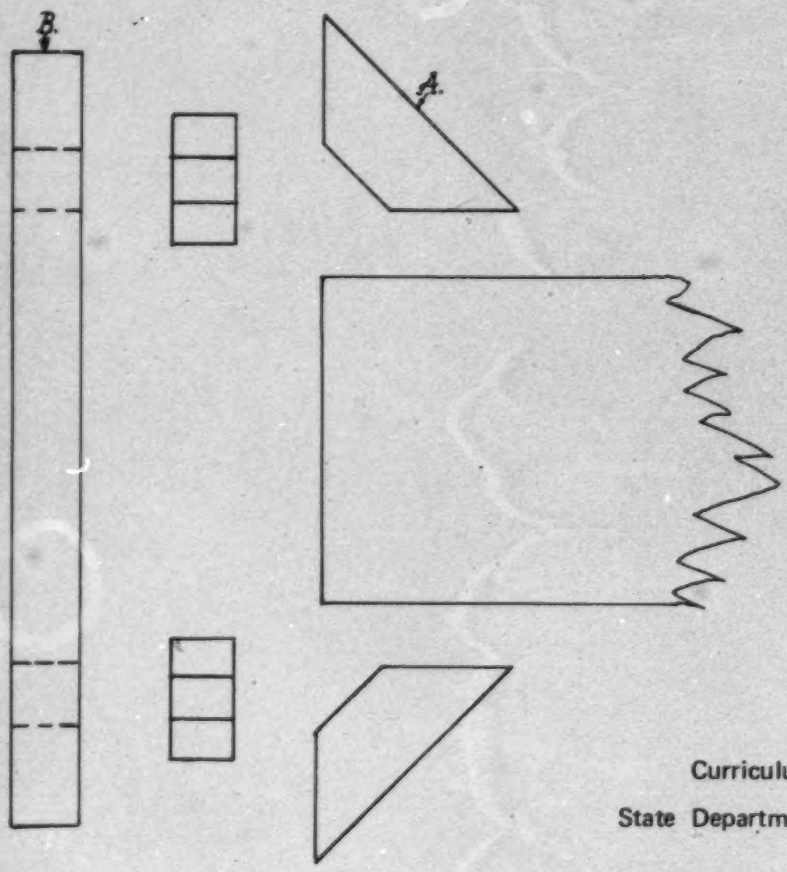


BILL OF MATERIALS
2 SPINDLES & HUBS
8 BOLTS WITH NUTS TO FIT SPINDLES
1 PIECE OF 2½" PIPE FOR AXLE (DESIRED LENGTH)
4 PIECES OF A. (REINFORCEMENT BRACE)
2 PIECES OF B (SPINDLE PLATES)

Axle

Scale: ¾" = 1"





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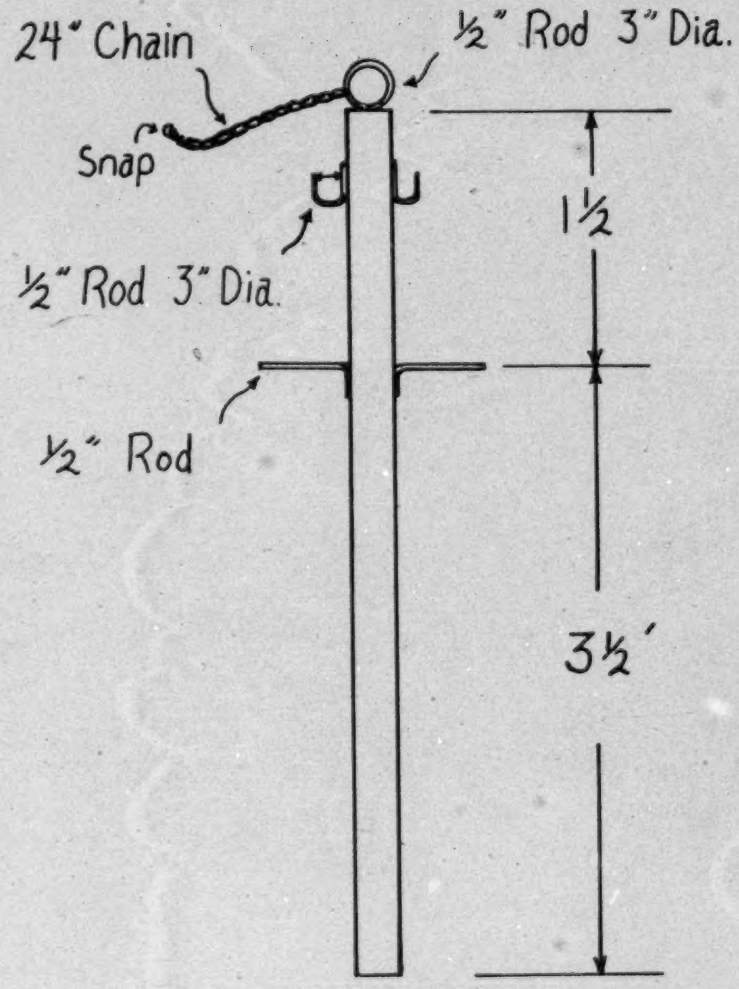
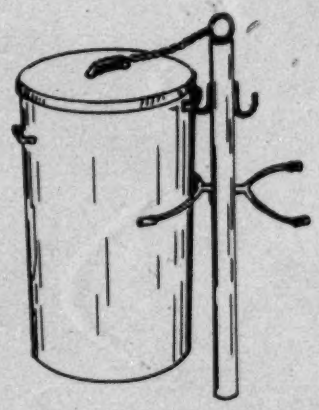
Dog-Proof Garbage Cans

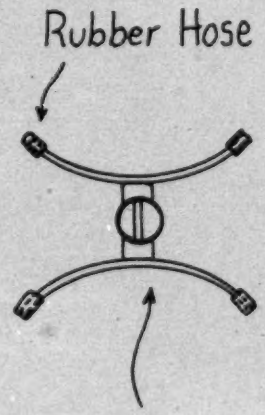
Scale: 1"=1'

BILL OF MATERIAL

1 Piece of 3" Pipe 5' Long
2 Pieces of Chain w/snaps 24" Long
2 Pieces of 1/2" Round Stock 6" Long
1 Piece of 1/2" Round Stock 6" Long
2 Pieces of 1/2" Round Stock 36" Long
4 Pieces of 1/2" Garden Hose 3" Long







Dia. to Match Garbage Cans

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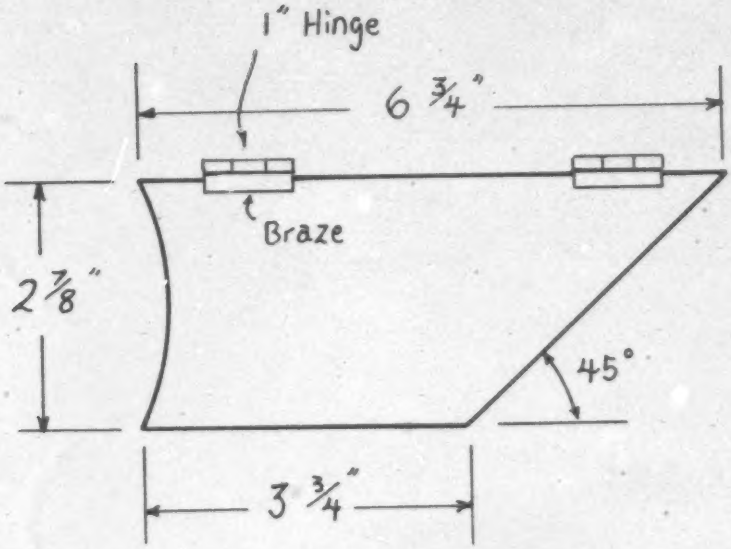
Stillwater, Oklahoma

Jig For Marking Pipe

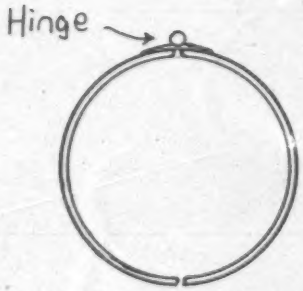
Scale: 1/2"=1"

BILL OF MATERIAL

1 Piece of 3" Pipe 6¾" Long
2 Pieces of 1" Long Hinges

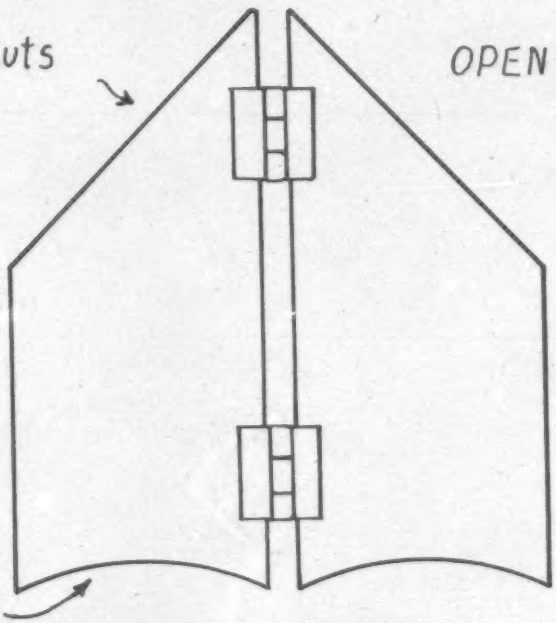


SIDE



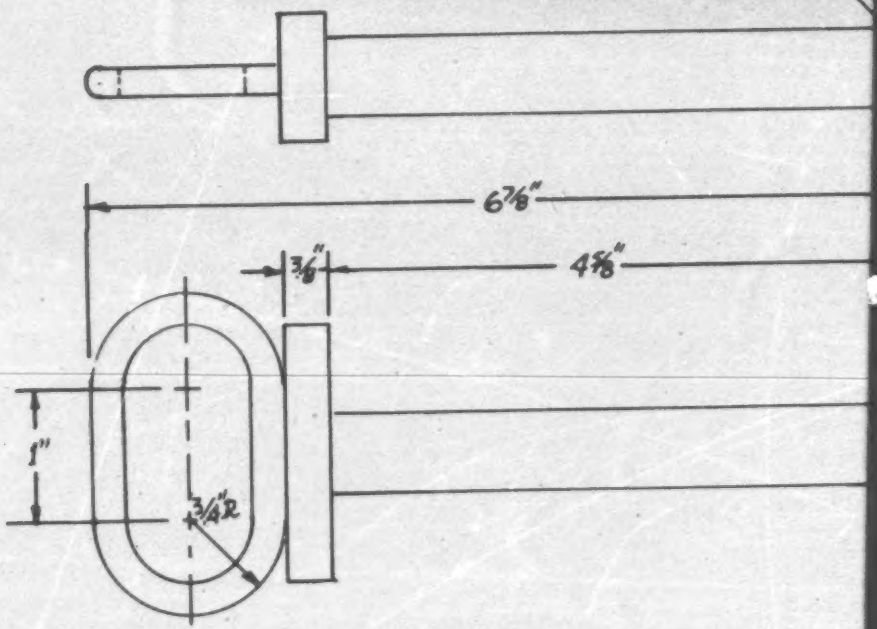
END

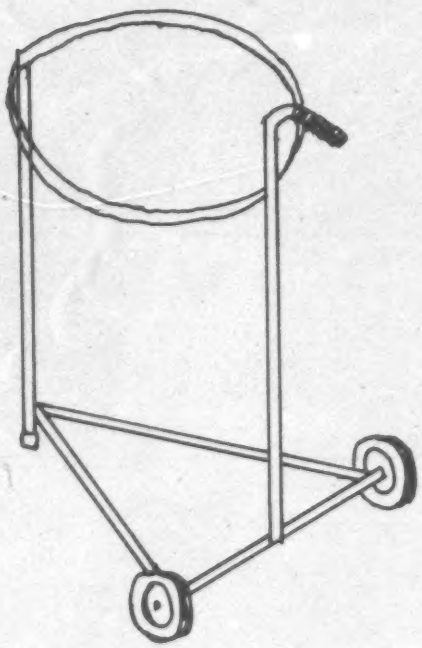
Angle for 45° Cuts

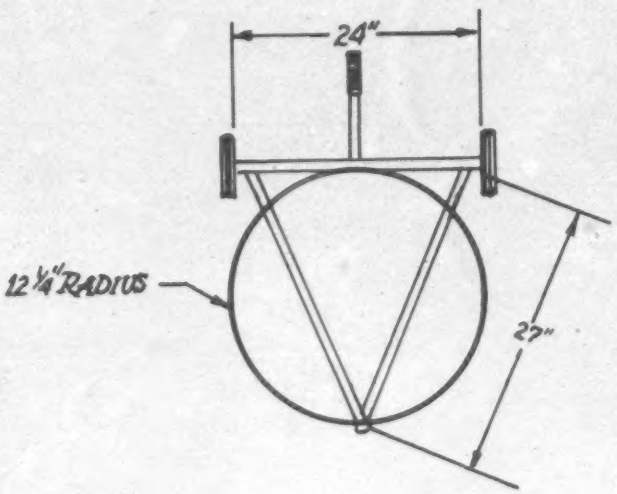


OPEN

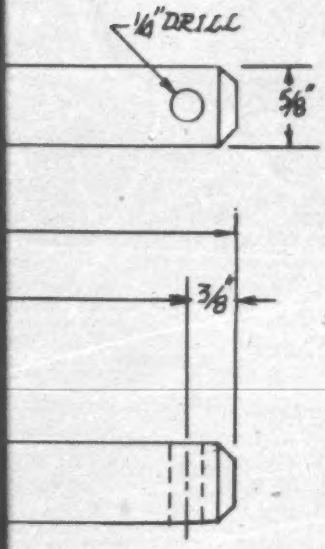
Groove for Marking Saddles







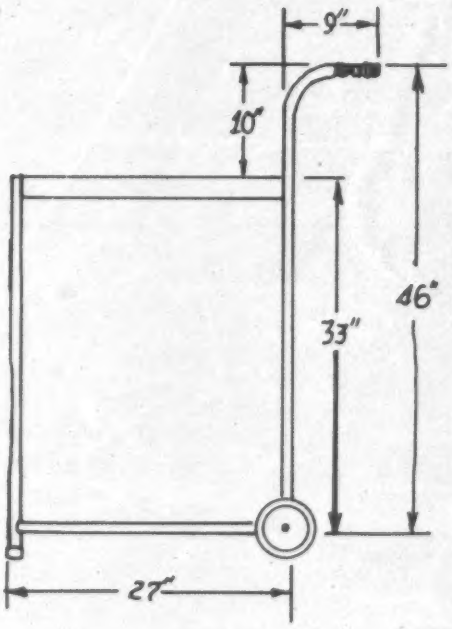
Courtesy of Keota
Vocational Agriculture Department



BILL OF MATERIAL
1 PIECE OF 3/4" ROD 5 5/8" LONG
1 PIECE OF 3/8" x 1" x 2" FLAT METAL
1 PIECE OF 1/4" ROD 6" LONG

Drawbar Pin

Scale: 3/4" = 1'



BILL OF MATERIAL
1 PIECE OF 1" PIPE 50" LONG
2 PIECES OF 1" PIPE 27" LONG
1 PIECE OF 1" PIPE 24" LONG
1 PIECE OF 1" PIPE 36" LONG
1 PIECE OF 1/4" x 2" STRAP METAL
2 - 6" WHEELS
1 - HANDLE GRIP

Barrel Holder

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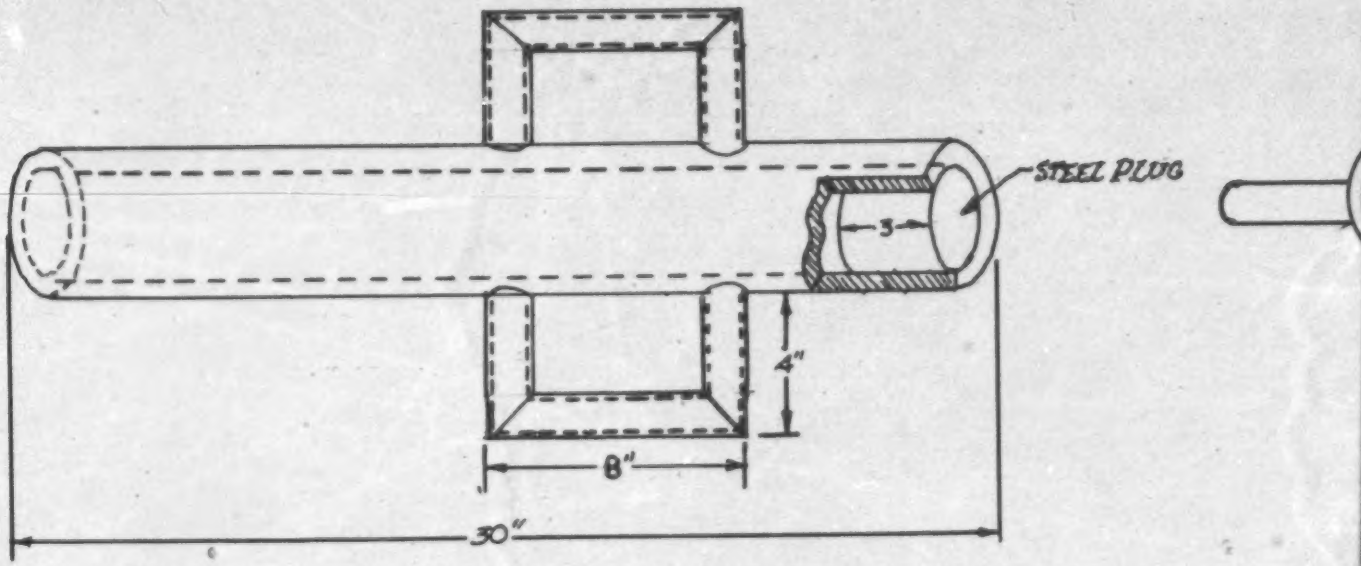
State Department of Vocational and Technical Education
Stillwater, Oklahoma

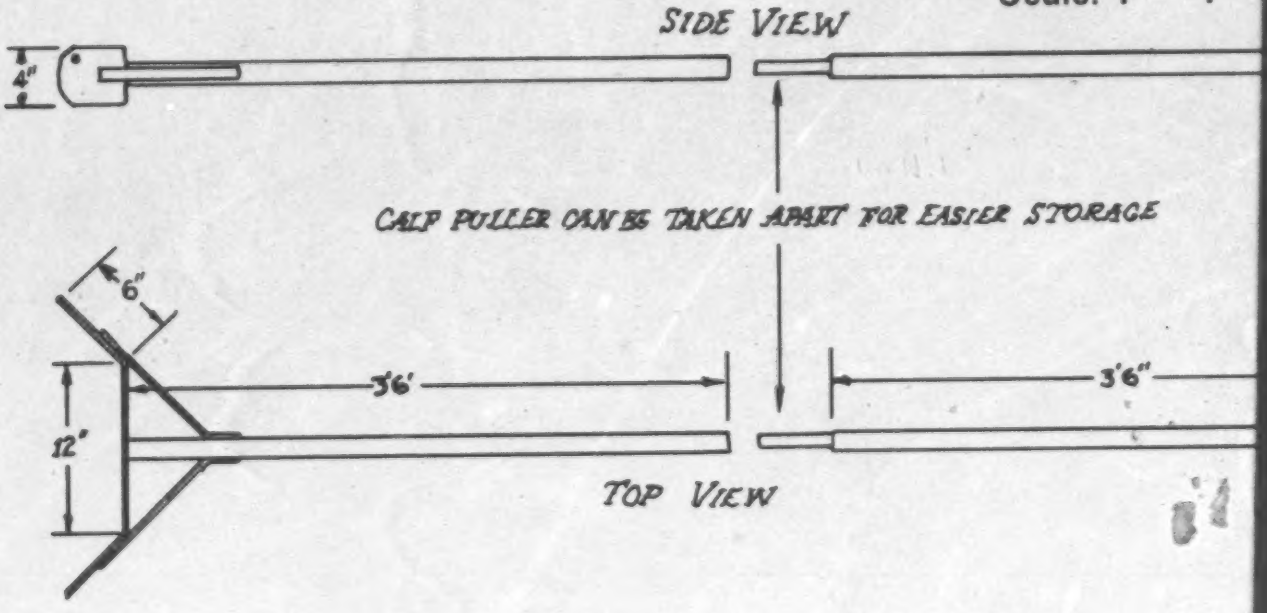
Post Driver

Scale: 3/16" = 1"



Calf Puller

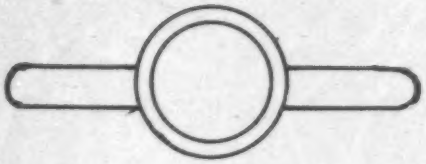
Scale: 1" = 1'



Courtesy of Jet-Nash
Vocational Agriculture Department

Driver

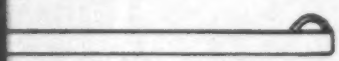
3/16" = 1"



BILL OF MATERIAL
1 PIECE OF 4" PIPE 28" LONG
2 PIECES OF 1" PIPE 8" LONG
1-SOLID STEEL PLUG 3" LONG
4 PIECES OF 1" PIPE 4" LONG

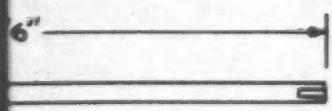
Puller

1" = 1'



GE

6"



BILL OF MATERIALS
2 PIECES OF 1½" SQUARE TUBING 3'6" LONG
2 PIECES OF 1¼" SQUARE TUBING 12" LONG
1 PIECE OF FLATMETAL 24" x 4" x 3/8"
2 PIECES OF 1" OR ¾" STRAP IRON 12" LONG
1 PIECE OF 3/8" ROD 5" LONG

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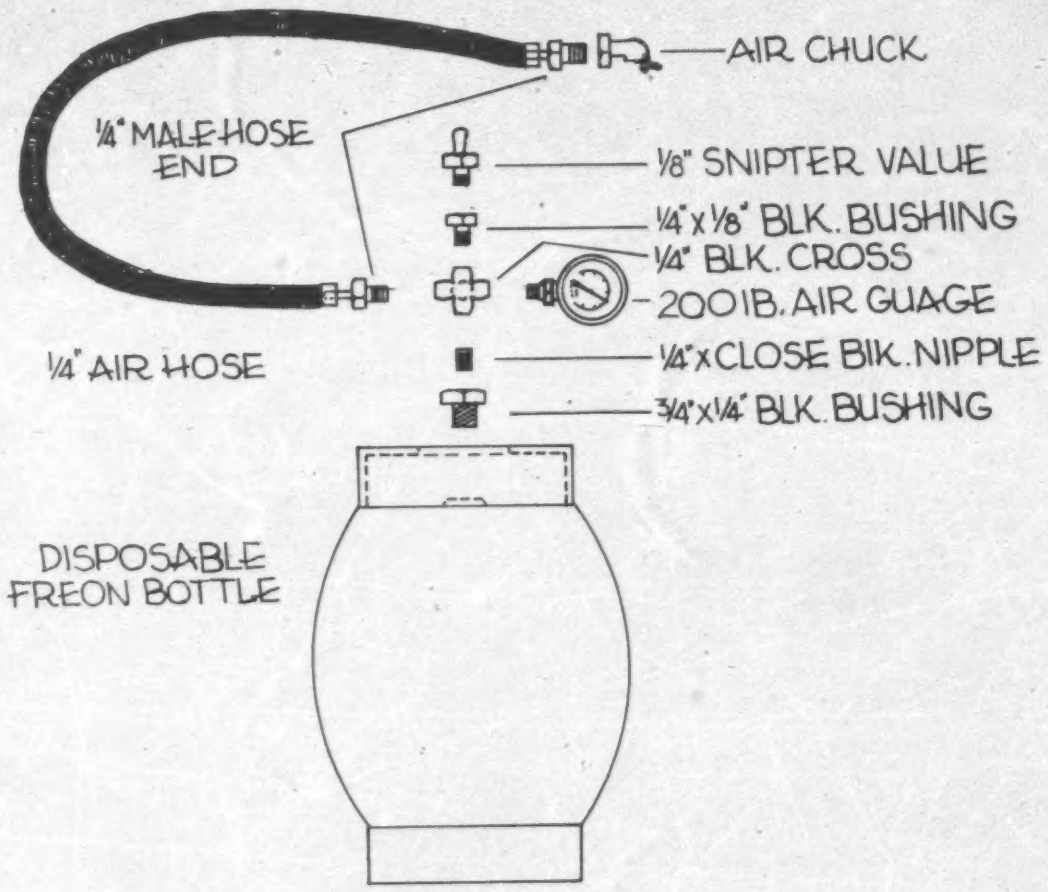
Stillwater, Oklahoma

DWN BY: JOHN McEACHERN



Air Bottle

BILL OF MATERIAL

- 1 - Genetron 22 or Freon 22 Disposable Cylinder
- 1 - 3/8" x 1/4" Bulk Bushing
- 1 - 1/4" Close Black Nipple
- 1 - 1/4" Bulk Cross
- 1 - 1/8" Snipter Valve
- 1 - 1/4" x 1/8" Black Bushing
- 1 - 200 lb. Air Guage
- 1 - 1/4" Air Hose 3' Long
- 2 - 1/4" Male Hose Ends
- 1 - Air Chuck

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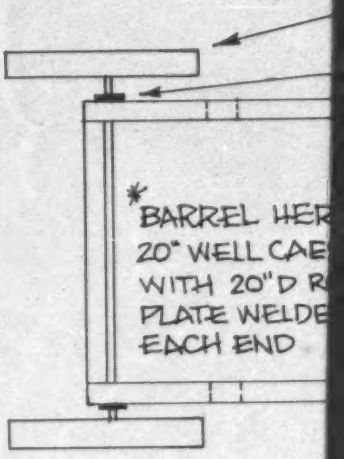
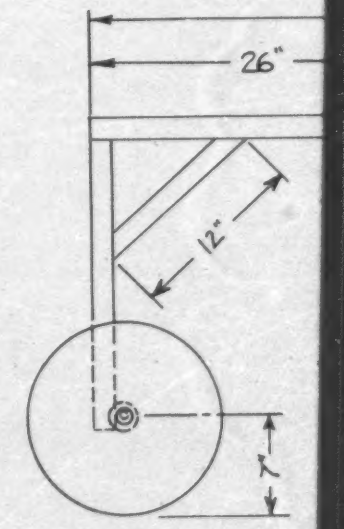
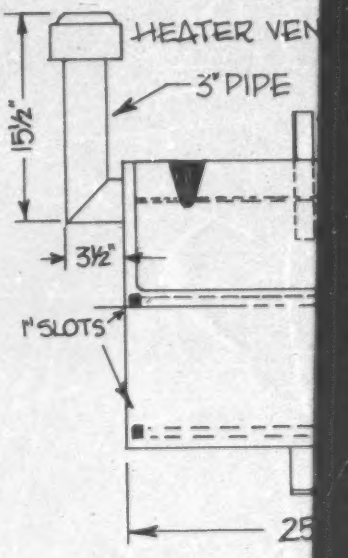
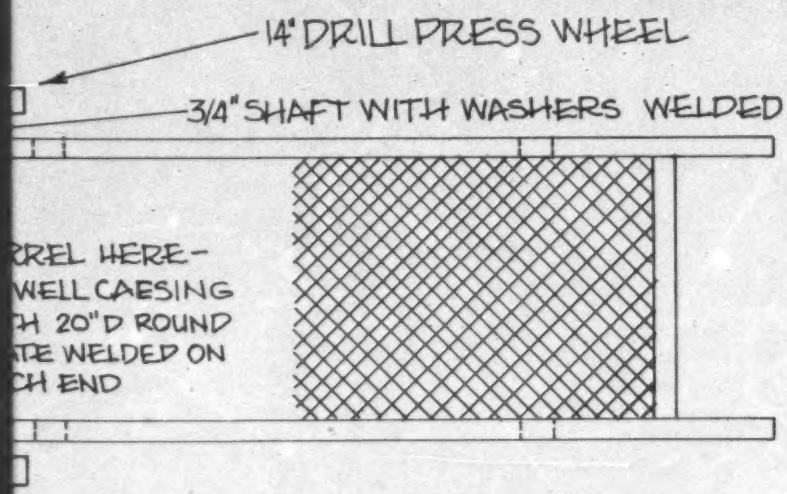
Stillwater, Oklahoma

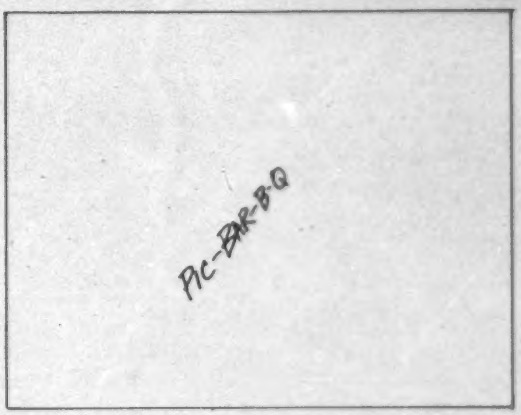
Courtesy of Wynnewood
Vocational Agriculture Department

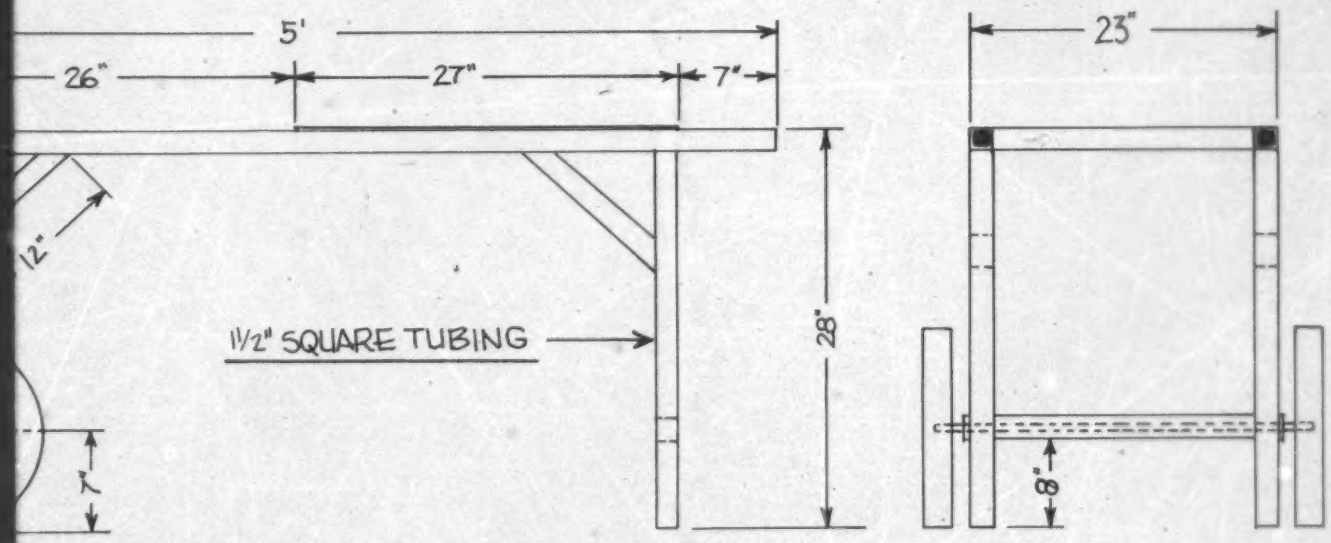


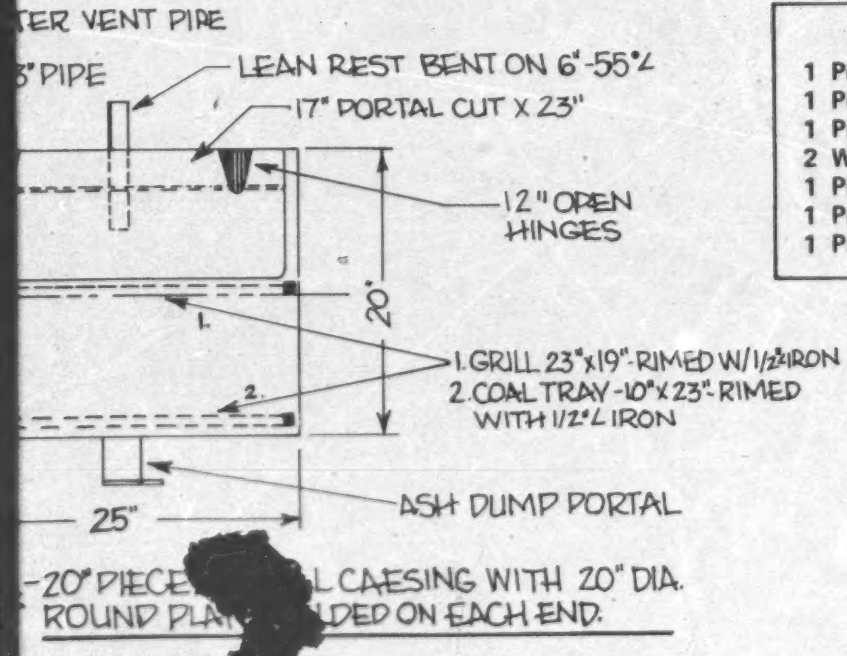












-20" PIECE L CAESING WITH 20" DIA. ROUND PLA LDED ON EACH END.

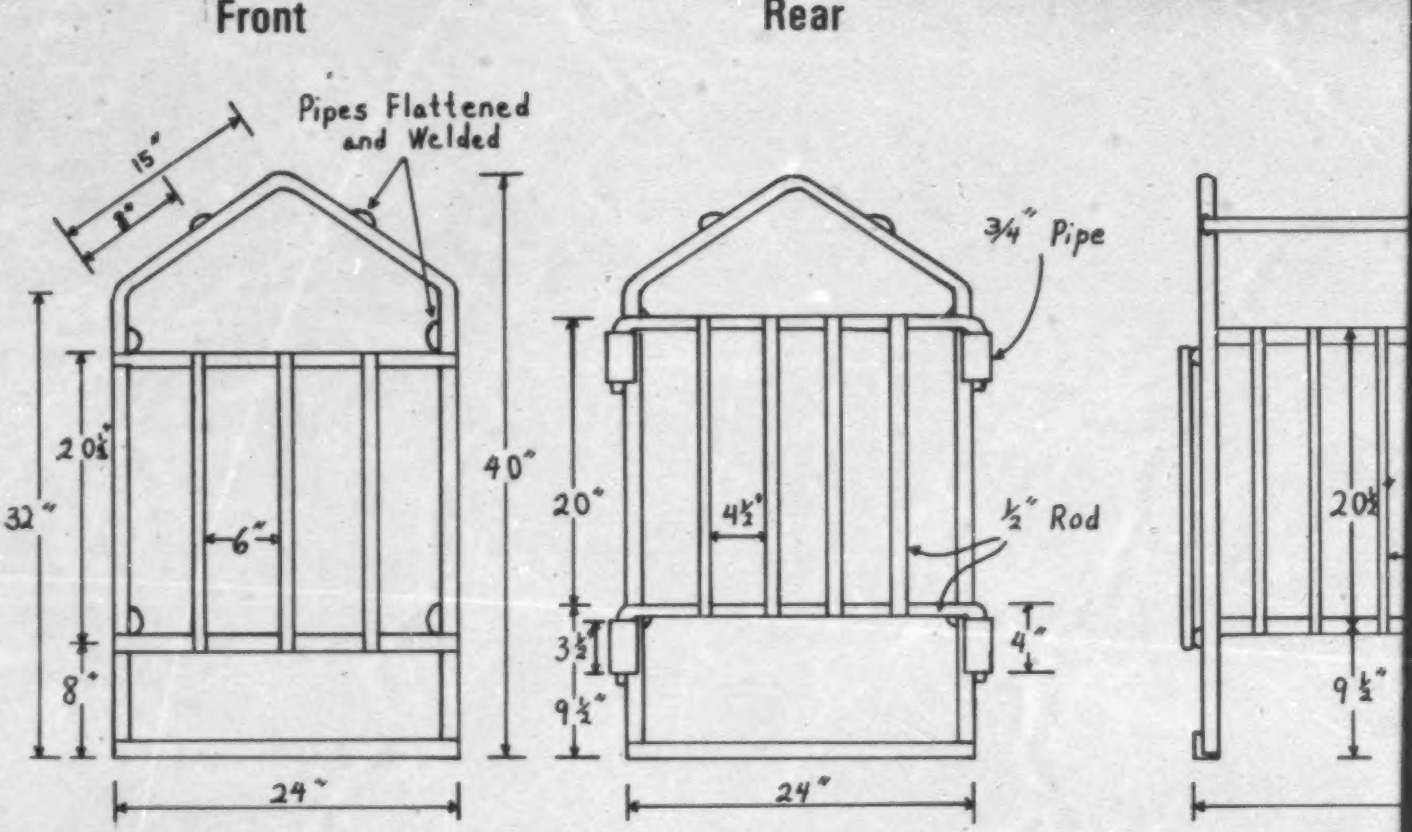
BILL OF MATERIAL

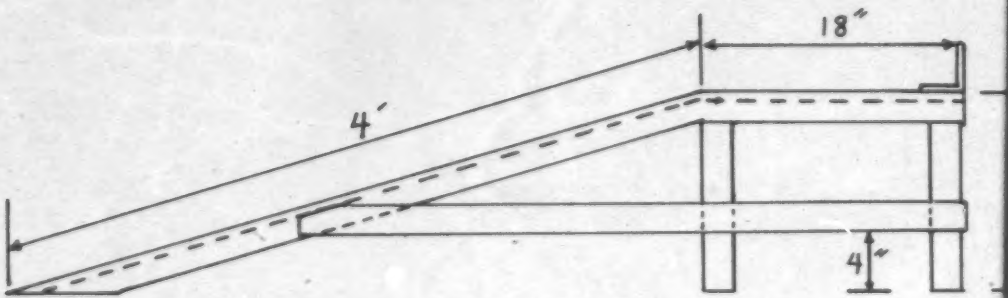
1 Piece of 1 1/2" Square Tubing 23' Long
1 Piece of Expansion Wire 7 1/2' Square
1 Piece of 3/4" Shafting 29" Long
2 Wheels
1 Piece of 20" Well Caseing 25" Long
1 Piece of 1/2" Guage Plate Metal 4 1/2' Square
1 Piece of 1/2" Angle Iron 6 1/4' Long

Barrel Barbecue

Scale: 1" = 1'

Courtesy of Watonga
Vocational Agriculture Department



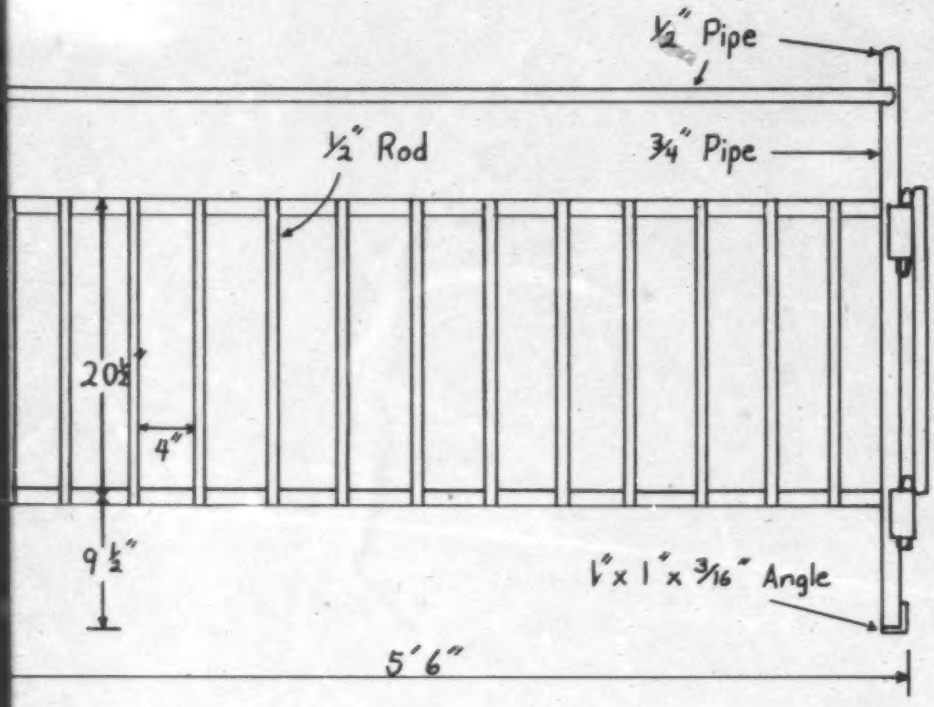


Courtesy of Eufaula
Vocational Agriculture Department

Side

Farrowing Crate

Scale: 1"= 1'



BILL OF MATERIAL

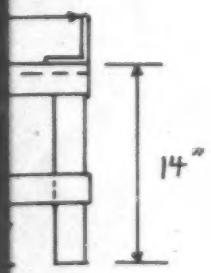
29 Pieces of ½" Rod 20½" Long
4 Pieces of ½" Rod 20" Long
4 Pieces of 1" X 1" X 3/16" Angle Iron
4 Pieces of ¾" Pipe 3½" Long
4 Pieces of ¾" Pipe 5'6" Long
2 Pieces of ½" Pipe 5'6" Long
2 Pieces of ½" Rod 24" Long
2 Pieces of ½" Rod 32" Long
4 Pieces of ½" Pipe 47" Long

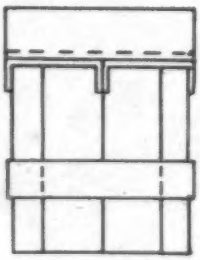
Car Ramp

Scale: 1" = 1'

BILL OF MATERIAL

2 Pieces of 6" Channel Iron 18" Long
2 Pieces of 6" Channel Iron 48" Long
4 Pieces of 2" Pipe 14" Long
2 Pieces of 1½" Strap Iron 3' Long
1 Piece of 1½" Strap Iron 3' Long
Expand Metal Covering





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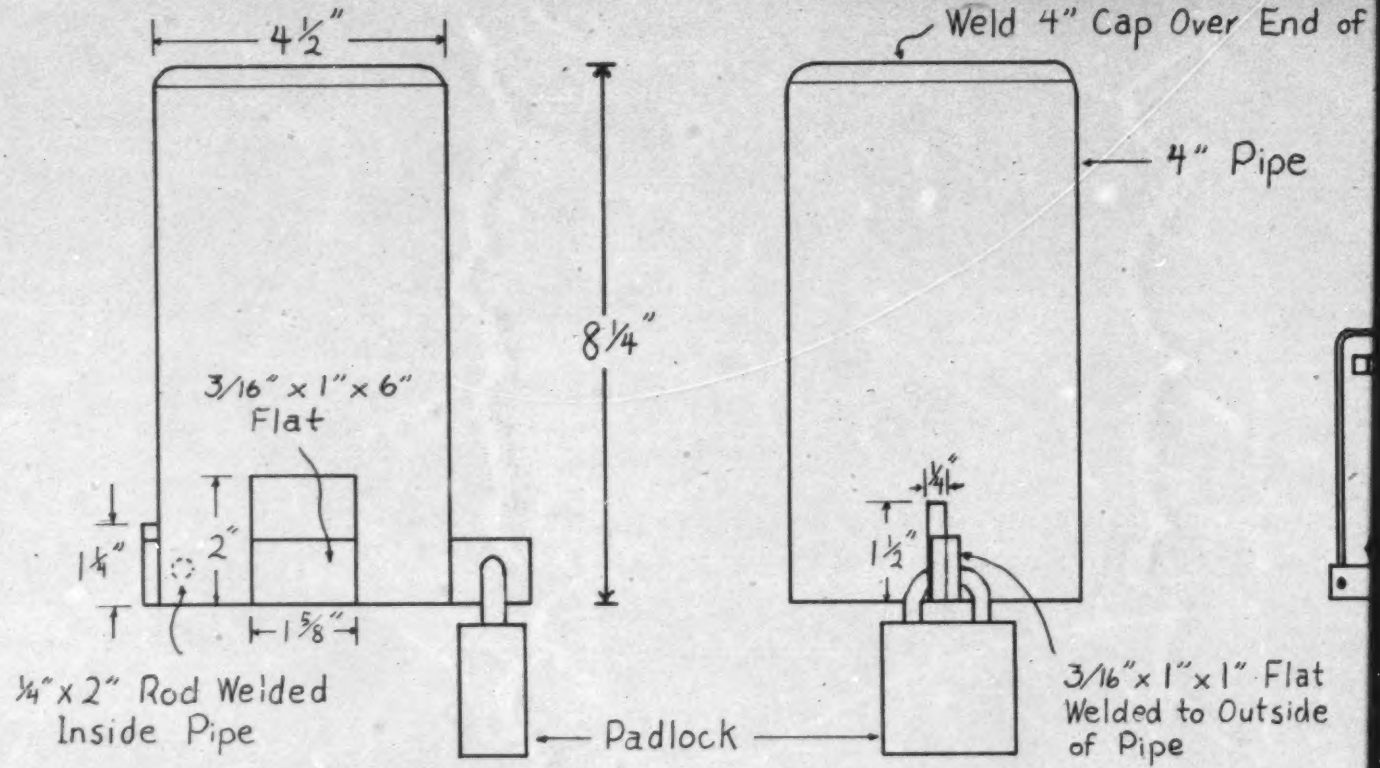
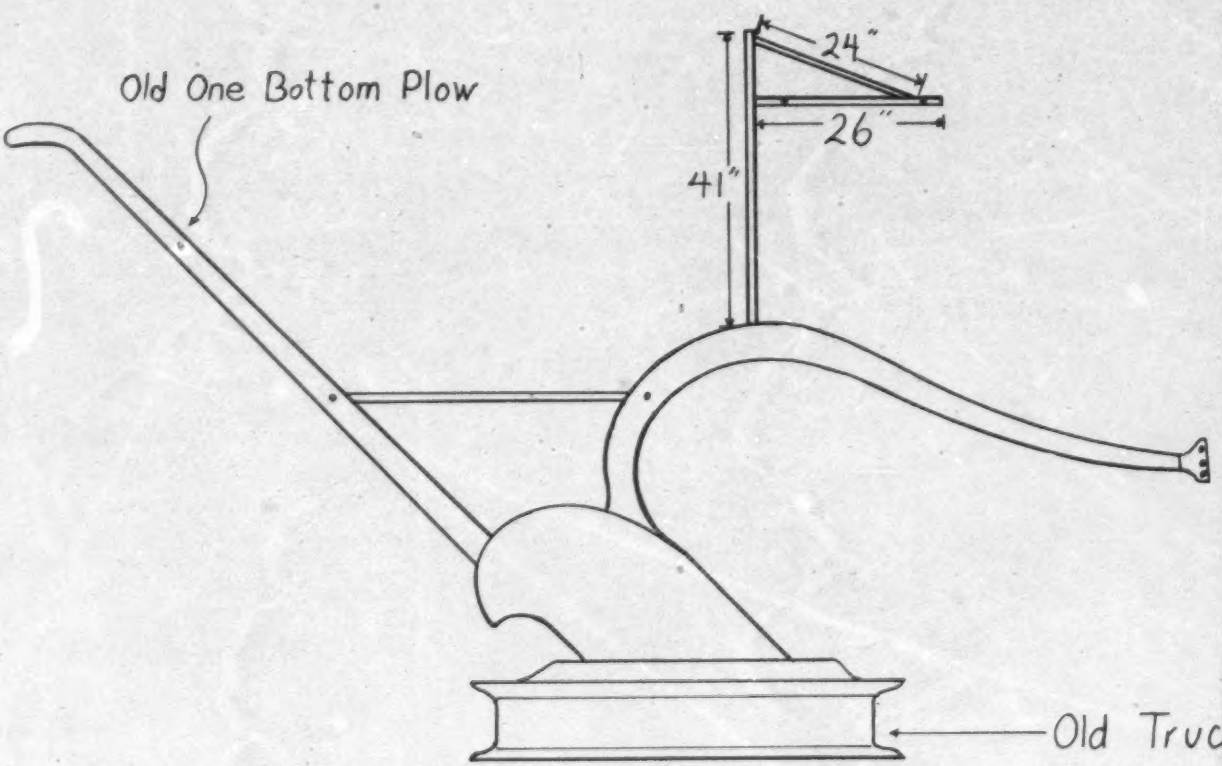
Bob Rea

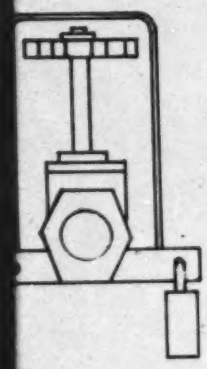

4½"
Weld 4" Cap Over End of
4" Pipe
8¼"
3/16" x 1" x 6"
Flat
1¼"
2"
1⅝"
¼" x 2" Rod Welded
Inside Pipe
Padlock
1¼"
1½"
3/16" x 1" x 1" Flat
Welded to Outside
of Pipe
Side
Front
Cross


Old One Bottom Plow
24"
26"
41"
Old Truc

f Pipe

Gas Tank Lock

Scale: 3/8"=1"



BILL OF MATERIAL

1 Piece of 4" Pipe 8 1/4" Long
1 Piece of 3/16" X 1" Flat Metal 6" Long
1 Piece of 3/16" X 1" Flat 1" Long
1 Piece of 1/4" Rod 2" Long
1 Piece of 4" Diameter Flat Metal

s-Section

Plow Yard Sign

Scale: 1/2"=1'

BILL OF MATERIAL

1 Piece of 1" Square Tubing 41" Long
1 Piece of 1" Square Tubing 24" Long
1 Piece of 1" Square Tubing 26" Long
1 Old One Bottom Plow
1 Truck Wheel

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State Department of Vocational and Technical Education
Stillwater, Oklahoma

ck Wheel